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Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 204

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EAST EUROPE

LATIN AMERICA

NEAR EAST AND NORTH AFRICA

BRIEFS

INSTALLATIONS FOR KUWAIT, EGYPT--The Kuwait Ministry of Telecommunications has placed orders for telephone exchange installations valued at 20 million dollars (about 90 million Finnmarkkas) with the Ericsson firm [of Finland]. The order includes computer-controlled AXE digital exchange installations, both for the new telephone system as well as for the exchanges installed previously by the firm. So far, over 30 countries--among them, Finland--have selected the AXE system. In Finland, Oy L.M. Ericsson Ab of Kirkkonummi is responsible for the planning, manufacturing and installing of the facilities. The firm has likewise received a new order from Egypt. That country's telecommunications agency is buying various telephone installations, mostly for its long-distance telephone system, at a value of over 50 million dollars (about 223 million Finnmarkkas). The deliveries are to occur within the next three years. Ericsson has concluded an agreement with Bulgaria, according to which an automatic signal system for the railways is to be delivered. The value of the contract is 44.6 million Finnmarkkas. Later, these installations will be manufactured under license in Bulgaria. [Text] [Helsinki HUFVUDSTADSBLADET in Swedish 7 Feb 82 p 13]

CSO: 5500/2116

SATELLITE SYSTEM [illegible]S REVIEWED; U.S. COMPANY WINS CONTRACT

Melbourne THE AGE in English 18 Dec 81 p 14

[Text]

CANBERRA. — A US company, Hughes Communications International, has won the Federal Government contract to supply satellite and ground control equipment for Australias comunications satelite.

Federal Cabinet yesterday authorised the managing body for the satellite, Aussat Pty Ltd, to begin negotiations with Hughes for the supply of the equipment. But the Government has asked for a further report from Aussat before making a final decision on contract commitment.

Details of Cabinet's decision were given in a statement yesterday by the Minister for Communications, Mr Sinclair. Hughes was one of four tenderers for this stage of the satellite project.

Mr Sinclair said the Government's decision meant that progress on the satellite, to be launched in 1985, was going to plan.

He said Hughes was recommended by Aussat as the preferred tenderer on technical and other grounds. It was the only tender which met the technical requirements.

Mr Sinclair's statement did not give the tender price submitted by Hughes, but a spokesman for the Minister said negotiations on final costs were yet to be undertaken although costs had been outlined by the tenderers.

Tenders for the system have been under evaluation by the Overseas Telecommunications Commission — the interim owner — since May this year. The other tenderers were Ford Aerospace, Thomson CSF and Satcom International, a partnership of British Aerospace and the French firm SA Matra.

Aussat, which was incorporated in November as a Government-owned company to procure, own, manage and operate the system, would provide a further report before the Government made a final decision.

Mr Sinclair said a number of Government organisations, including Telecom, the departments of Transport and Communications, and Aussat were still evaluationg tenders for the supply of earth stations to operate with the system.

Decisions on the successful tenderers for these stations were expected to follow the decision on the satellite procurement by a few months, he said.

Bookings have been secured by Aussat with NASA on the space shuttle and separately with the European-developed Arianne rocket to launch the satellite.

The satellite would provide a wide range of services for the broadcasting industry, Telecom, Transport Australia and business users throughout Australia, Mr Sinclair said.

CSO: 5500/7519

ADVANCES IN SATELLITE, OPTIC FIBRE COMMUNICATIONS EXPECTED

Canberra THE AUSTRALIAN in English 1 Dec 81 p 18

[Article by Alan Anderson, senior systems engineer at IBM Australia]

[Excerpt]

As more and more applications move on-line and real-time, the need for on-line data transfer between different applications becomes evident.

It is no longer acceptable for on-line applications to pass data via batch processing. Nor is it acceptable for organisations to acquire long-life equipment without regard to issues of common access.

The majority of networks today use leased or dial lines as acquired from Telecom.

These facilities encode digital data so that transmission can be effected on facilities designed to transmit analog information, viz the human voice.

Increasing use of computers for data transmission has created requirements that exceed those available on voice communication, while at the same time computer developments have provided the communications industry with the building blocks for the newer and more effective data transport systems.

Telecom has announced a Digital Data Service for use by the end of next year. It is based on the transmission of data using digital rather than voice facilities.

The service will provide improvements in reliability and availability at significant cost savings for medium to long-distance leased lines.

For example, the cost of a 4800 bits per second service between Sydney and Melbourne will be some 55 per cent, while a Sydney-Perth line will be some 30 per cent of the equivalent Datel service.

Austpac is the X.25 public packet network being introduced by Telecom.

Public packet networks were designed to permit many low-speed users to share the use of high-speed trunks.

Information is blocked into data packets including routing headers and these are then passed on common trunks and switching nodes.

Public packet networks provide significant advantages for users having insufficient data traffic to justify use of leased facilities.

By requiring user equipment to adhere to specific protocols and interface requirements, the needs of a number of users can be addressed by sharing the network facilities.

The next significant communication technologies that can be expected in this country are based on communication satellites and fibre optics.

Australia has used satellite communication for overseas traffic since 1968 and it can expect to use a domestic satellite by 1986.

Since the introduction of the first communications satellites the cost per circuit has reduced by a factor of 50.

By the end of this decade we can expect the cost of the space segment of a satellite circuit to be under $100 a year.

CSO: 5500/7519

NEED FOR IMPROVED COMPUTER-RELATED SECURITY MEASURES NOTED

Canberra THE AUSTRALIAN in English 1 Dec 81 p 28

[Article by Barry Z. DeFerranti, managing director of Perspective Management Services Pty Ltd]

[Text] COMPUTER crime and computer related crime in Australia in the period 1975-80 revealed 53 cases of abuse, according to the Caulfield Institute of Technology-Computer Abuse Research Bureau (CIT-ARB).

The cost of these crimes came to almost $2 million with one alone costing $300,000.

It seems that this is the tip of the iceberg as there is a marked lack of disclosure by computer organisations of computer crime, and the risk of being caught is very low.

Management has been too trusting, allowing too many people access to computers and overlooking the fact that such lax security leaves the way open for unauthorised access and use of data.

Chief executives have a vested interest in directing an effective data security program and ensuring it is not controlled by those who operate the data processing side of their business.

There seems to be little awareness from within the industry of the need for adequate data security measures to protect this vital, often sensitive information.

The traditional "she'll be right mate" syndrome, Australia's laissez-faire attitude to the responsibility for change, seems alive and well in the computer industry today.

There is a demonstrated need for the industry to regulate from within. However, in the rush and panic of applying the latest technology, computing people have not taken time to think of the problems of vulnerability, exposure, risk or threat to data.

Less than 1 per cent of control programs available as off-the-shelf packages are concerned with security data and very few have been applied in Australia.

One of the most effective measures of control is the role played by the auditor.

Yet a survey compiled by CIT-CARB shows that only two out of five computer-using organisations have internal auditors and only one in seven actually have EDP auditors.

To back up data security management, many organisations will need their own security specialists.

AGGRAVATED

With few avenues of detection and few, if any, computer specialists in crime investigation services, the problem can only be aggravated by the lack of internal regulation.

The computer industry gives lip-service to the need to apply standards and self-regulation in very few respects.

It even has difficulty agreeing on areas of vital concern such as programming and communications.

Should the industry take the initiative to set up its own data security control body, the body must have adequate powers of control to regulate.

It should also have the support of all sections of the industry so that its effectiveness is ensured.

Alternatively, the industry can wait until there are further disasters beyond the well publicised massive over-payment to pharmacists due to error, then seek to apply protective data security measures while licking its wounds.

Data security measures can also be left in the hands of goverment.

In the US there has been legislative action in the form of the Electronic Funds Transfer Act (1979).

Under two sections of the Act, the Federal Reserve (Bank) Board has enforced a set of Final Regulations for Consumer Protection.

There are also Acts on privacy, terrorism, threat, fraud and secrets, to name a few.

It should not be left to government to impose data security controls in the private sector.

But, given the industry's performance of individual users applying adequate data security measures, it would be reasonable to believe that the only form of control would come from government.

The problem here is that government in Australia does not have the expertise to formulate such controls.

There is at present a forceful, powerful lobby directed at extending current privacy laws, particularly about privacy of the individual's personal, medical, legal, professional even domestic details.

If the computer industry is not seen to be moving towards the establishment of a data security standard or regulation, government may well see an additional role for itself.

CSO: 5500/7519

RAPID COMMUNICATIONS DUE TO INSTALLATION OF 50,000 MODEMS

Canberra THE AUSTRALIAN in English 15 Dec 81 p 25

[Text]

THE installation of 50,000 modems throughout Australia was a milestone for Telecom, the chief manager commercial, Mr Lex McPherson said last week.

Speaking at the handing over of the 50,000th data modem to Australian Pharmaceutical Industries in Alexandria, Sydney, Mr McPherson said modems were the vital cogs in telephone circuits providing rapid communication between computers and remotely controlled terminals.

"In the case of the computer industry, the growth of demand for modems has been extraordinary," Mr McPherson said.

Installations had risen from 9000 in 1976 to 45,000 in June 1981, a fivefold increase.

The NSW share of this market was about 30 per cent. Victoria's was about 40 per cent.

"We are planning for continued high growth at a rate of 25 per cent or more annually," he said.

Initially, Telecom had supplied only two types of modem to translate data into a form suitable for transmission over a telephone network.

Now there were 18 different types, capable of speeds up to 48,000 bits per second.

Two new developments in Telecom's data product range would be the Digital Data Service (DDS) and the Austpac packet switched service, both to be launched at the end of 1982.

DDS had been specially designed to solve the problems often experienced by operators of large teleprocessing networks.

Austpac involved the routeing of data in quantities called packets.

Possibly its most significant feature, he said, was that the transfer of data between computer and terminal would not depend on the distance between them.

CSO: 5500/7519

EXPERT REVIEWS GROWTH OF TELECOMMUNICATIONS

Dacca THE BANGLADESH OBSERVER in English 26 Jan 82 p 6

[Article by Engr. A. B. M. Taher, Chairman Bangladesh T&T Board]

[Excerpt] At the time of liberation, Bangladesh was entirely dependent on Pakistan for its International Telecommunication, except a direct telephone link between Dacca and London. The telecommunication service with ships was also quite rudimentary, mainly through the Port of Chittagong.

A tremendous development effort, therefore, became necessary, when Bangladesh became an independent nation. The first action taken in this respect by the T&T Department, through its newly established office of the Director-General, was to expand the H.F. Radio Telephone Service. New circuits with Berne, (Switzerland), Manila (Philippines) and Hongkong were established and the number of circuits with London was increased. These were done by rehabilitating some of the equipment which were available in the country. In addition to the above, the project for the establishment of a Satellite Earth Station in Betbunia, Chittagong Hills was revived. This station was originally planned mainly for inter-communication between the then East and West Pakistan. The overall system configuration designed for the station had to be drastically changed for international tele-communication with a large number of countries around the world. The telecommunication service with India, our immediate neighbour, was through an open-wire physical line between Kushtia, Bangladesh and Ranaghat, India. A project was taken in hand for extending the national microwave link, which was also rehabilitated from war damage, from Kushtia towards Calcutta via Chuadanga, Bangladesh and Krishnagar, India.

H. F. Communication being unreliable and technically unsatisfactory for round the clock working change over to Satellite Communication was urgent and challenging. This challenge was accepted by the writer, who, with the help of a few younger engineers, [word illegible] wrote the specifications, without the help of any consultant and agreement was finally signed with the concerned Canadian Firm on the basis of the new design. The Satellite Earth Station in Betbunia, Chittagong Hill Tracts became reality and a breakthrough in the field of international telecommunication for the country was made. The station was commissioned from April, 1975 and the inauguration of the station was done on 14th June 1975 by the then President of the country, Sheikh Mujibur Rahman.

Through this earth station, Bangladesh Telegraph and Telephone Department not only established direct telecommunication service with the United Kingdom, Federal Republic of Germany, Switzerland, Saudi Arabia, the United Arab Emirates, the U.S.A., India, Pakistan, Singapore, Hongkong and Japan and through these direct links with almost all the countries of the world, but also transmitted and received many television programmes for the viewers in Bangladesh, including Apollo Man-on-the-Moon Project. Haij Celebrations, Boxing of Mohammad Ali, the hijacking of Japan Airlines in Dacca, International Football Matches held in Dacca and many other such programmes received from Eurovision are shown every night for the benefit of the television viewers in the country, which is unique in the whole of South Asia.

The Microwave Radio Relay system between Bangladesh and India was commissioned from May, 1981, as a result of which high capacity and reliable telecommunication facilities are now available with India, including Calcutta, New Delhi and Bombay. It is expected that semiautomatic dialling system between Bangladesh and many countries of the world, including India, some of the Arab countries, U.K., U.S.A. etc. will be available, on the establishment of the international automatic trunk exchange in Dacca in 1983. An agreement has recently been signed between Bangladesh and Nepal for extension of the Bangladesh Microwave Radio Relay System to Nepal, for which the required equipment will be supplied by Bangladesh as part of its technical assistance programme with this neighbouring country.

The Second Satellite Earth Station in Talibabad, near Kaliakoir in Dacca District, has now been commissioned and it is being inaugurated by the Hon'ble President of Bangladesh, Justice Abdus Sattar on 26th January, 1982. With the inauguration of the station, satellite telecommunication between Bangladesh and many new countries like Nepal, Sri-Lanka, Burma, Thailand, Malaysia, Australia, Indonesia, Iran, Iraq, Kuwait, Italy, France, Soviet Union, etc. are expected to be established. In addition to such normal telecommunication facilities with new destinations, this station will also provide the contingency coverage for the larger capacity station in Betbunia. With an improved design over a normal standard 'B' station, this station will also provide high quality television transmission and reception facilities, by providing high resolution television pictures for Bangladesh Television. With the complication of this station, an important requirement for the country has now been met. When domestic satellite telecommunication system is introduced in the country, this new station will form the nucleus and become the Master-control station for the new system.

With the commissioning of the digital electronic telex exchange in Dacca in June, 1981 another technological breakthrough in the field of international telex communication has been made. It is now possible for our telex subscribers to directly dial the other telex subscribers in most of the countries of the world and this has helped the official business and commercial activities, giving a real boost in the exchange of the written word.

CSO: 5500/7077

REPORT ON TALIBABAD SATELLITE EARTH STATION

Dacca THE BANGLADESH OBSERVER in English 26 Jan 82 p 6

[Article by Engr. Md Enamul Huq, Director, Microwave Project]

[Text] Talibabad is the proud village of Dacca where the second Satellite Earth Station of Bangladesh is located. It is about 54 Kilometers away from the City of Dacca and near Kaliakoir Police Station, on the Dacca-Tangail main road. The area is surrounded by tiny hills of Gazari forest. Being a noiseless area the location is best chosen for the purpose.

With the increasing importance of International Communication, it was felt that there should be a second Satellite Earth Station in Bangladesh in order to share some load with the existing Betbunia Satellite Earth Station and also as a standby arrangement against any unpredictable disaster. The place is therefore selected near Dacca at an aerial distance of 40.5 Kilometers at a longitude of approx. 90°14' E and latitude approx. 24°4' N. It is linked with Dacca by a 960 channel microwave hop.

Talibabad Satellite Earth Station is an improved Standard 'B' type Station having better G/T ratio than the INTELSAT requirement. It will now work with the INTELSAT IV--A Satellite situated at an altitude of about 35,600 Kilometers from the earth on the Indian Ocean. This INTELSAT IV-A has got 20 Transponders with provision for more than 7000 voice grade circuits with one T.V. channel. It is located at 61.5° E.

Due to improvement in Satellite TEchnology the INTELSAT-V series has come up. This Satellite has got 27 Transponders with provision for 12000 telephone channels and 2 T.V. channels. Our Talibabad Station will also be able to work with INTELSAT-V when it is activated.

Talibabad Satellite Earth Station is presently equipped with 26 SCPC PCM carriers to simultaneously transmit and receive 24 telephone channels and 2 service channels. This capacity is extendable up to 60 channels. The station is capable of rendering all sorts of Telecommunication services including exchange of quality T.V. (colour or monochrome) programme.

Because of its importance this project was done on priority basis. The existing Betbunia Station needs to be closed down for some time in order to incorporate

necessary modifications in it. This modification became necessary to make it compatible to the changes in Satellite Technology and due to launching of INTELSAT-V series. During its closure the traffic of Betbunia Station will be diverted to Talibabad Satellite Earth Station.

The total estimated cost of the project is Taka 11.29 crores including a foreign exchange component of about Taka 4.42 crores. The work was completed by M/S. Telspace of France on a Turnkey basis. The up to date total expenditure of the Project is Taka 8.15 crores. The construction of main functional buildings, residential quarters and important physical facilities are going on.

This Station will provide to the users a more reliable means of International communication at home and abroad.

CSO: 5500/7077

PLANS FOR MADRAS TELEPHONE IMPROVEMENTS TOLD

Madras THE HINDU in English 28 Jan 82 p 12

[Text] MADRAS, Jan. 27.

Within the next six months the Madras Telephones will add 4,300 lines to the existing network in the city. The additions will be made in four exchanges which have a heavy waiting list, particularly for shifting.

Announcing this at a news conference here today, the General Manager, Mr. K. C. Ramadoss, said that the capacity of the Kodambakkam exchange would be increased by 1,000 lines by the end of March. The equipment needed for the expansion had already arrived and the erection work was in progress.

By August this year, the Adyar exchange would get 2,000 lines more while the capacity of the New Anna Road exchange would go up by 1,000 lines. Another exchange taken up for immediate expansion was Kalmandapam where 300 lines would be added within the next two or three months.

The increased capacity at the Kodambakkam exchange would be distributed between Kodambakkam and Mambalam areas and utilised mainly to wipe out the waiting list for shifting.

The proposed 10,000-line electronic exchange at Nungambakkam, Mr. Ramadoss said, would become functional by 1984. Apart from expanding a few exchanges like Ambattur and Chromepet, new exchanges at Mandaveli and Annanagar had also been proposed to be started before March 1985.

With all the modernisation and expansion programmes on hand, "we hope, by the end of this decade, we would be able to give telephone lines on demand", Mr. Ramadoss said.

Centenary celebrations: As part of its centenary celebrations beginning tomorrow, the Madras Telephones has put up at Rajaji Hall an exhibition which portrays the hundred-year history of the telephone in India.

Besides an array of telephone instruments — from the primitive to the ultramodern type — different varieties of cables used in the telephone network are on display. Live models of telephone exchanges, both manual and automatic, and a trunk exchange board have been set up for demonstration to the visitors.

The Indian Telephone Industries, Bangalore, the main supplier of telecommunication equipment in India, has exhibited the latest type of electronic exchange and telephone instruments.

Exhibition: The week-long exhibition which the General Manager described as "Mini-Madras Telephones" will have facilities for commercial activities also. The visitors can register for a new telephone connection or book requests for shifting or accessories, renew the old directory, pay telephone bills, register complaints about service or billing, and make trunk and STD calls.

First day covers: A number of colourful postage stamps and first-day covers issued in India and other countries on telecommunication including satellite communication have been displayed by the South India Philatelic Association.

CSO: 5500/7076

BRIEFS

INDO-UAE CABLE--An agreement has been reached with United Arab Emirates for a submarine cable link between Bombay and the United Arab Emirates, reports UNI. Together with the Madras-Penang cable link recently commissioned, the new link would provide a girdle to facilitate reliable and faster communication between the countries in the region(according to Communications Minister C M Stephen. Outlining the telecommunication development plans in a talk in the spotlight programme of All India Radio on the occasion of the Centenary of Madras Telephones, Mr Stephen said that the telephone system would go electronic in the coming years. The country would shortly set up capacity for manufacture of 10 lakh lines of digital electronic switching equipment. The launching of India's own satellite INSAT in about 2 months time would revolutionise the communications system in the country, Mr Stephen said. [New Delhi PATRIOT in English 29 Jan 82 p 5]

CSO: 5500/7075

HYDERABAD EXCHANGE WITH 1,000 LINES SOON

Karachi DAWN in English 4 Feb 82 p 4

[Excerpt] Hyderabad, Feb. 3--The SITE Exchange, Hyderabad, having capacity of 1,000 lines will start functioning shortly and more connections will be given to the industrial units, said Mr Wali Mohammad, General Manager, Southern Telecommunication Region (STR) while presiding over a meeting held here the other day to assess the performance of telecommunication service in southern region.

He informed the meeting that 30 subscribers of Telex in Hyderabad city and one Public Telex will start functioning in Hyderabad soon and added that there are some telephone lines available in Kotri Exchange and interested persons could get telephone connections without any delay. The G.M. said that on the increasing demand of people more telephone connections would also be given in Nawabshah, Mirpurkhas, Tando Adam, Thatta and Tando Allahyar. He said that due to heavy rains in 1978 almost all the cables were destroyed in Hyderabad and now they had been restored. Referring to the complaints of wrong and excess billing the G.M. said that proper attention was being given to such complaints. He also informed the meeting that proper attention was being given for providing telephone connections to the rural areas of the region and added that in this respect at present 504 Public Call Offices were working in the region out of which 121 long distance PCOs are in Hyderabad Telegraph Division, 90 in Larkana and 58 in Khairpur Division.

CSO: 5500/5682

BRIEFS

SATELLITE STATION WITHDRAWN--Pakistan's main satellite earth station at Dehmandro has been withdrawn from services from yesterday. Services stand transferred to a non-standard earth station, specially built for use during modification of standard "A" Antenna expansion capabilities, says a Press release issued by the Pakistan Telegraph & Telephone Department. During the period of use of non-standard antenna upto middle of March this year the TV transmission from Pakistan will not be possible. The degration on other services will generally be not noticeable and telephone, telegraph and telex communication will continue as before, the Press release concluded. [Karachi MORNING NEWS in English 7 Feb 82 p 8]

CSO: 5500/5682

PLANS TO IMPROVE, EXPAND TELECOMMUNICATIONS OUTLINED

Communications Improvements Described

Sofia IMPUL'S in Bulgarian 8 Dec 81 pp 1,3

[Interview with Ivan Marinov, deputy minister of communications, conducted by Lyuba Anachkova]

[Text] [Question] Engineer Marinov, how do you assess the current status of interurban telephone communications? You may have expected that my first question would deal precisely with the operation and maintenance of this type of telecommunications.

[Answer] Interurban automation has reached 65 percent. This represents a considerable increase in the development of interurban telephone communications. In recent years, a considerable amount of multiplex equipment, the domestic production of which is increasing, has been added to the system. Impulse-code modulation equipment is being used.

An interurban telephone network using modern quasi-electronic switching equipment has been essentially completed.

Intraokrug automation has been developed as well. Skilled specialists are maintaining this equipment properly.

[Question] Is it possible that at the present stage interurban communications, with the help of an operator, are being underestimated?

[Answer] Absolutely not. The number of channels used for this purpose is being increased according to the telephone traffic. Interurban telephone operators are facing increasingly stricter requirements regarding the quality and standards of services.

Last year all telephone operators had to take examinations. New initiatives are being increasingly promoted among them.

[Question] What improvements will there be in interurban telephone communications over the next few years?

[Answer] Improvements will apply above all to the installation of new capacities at a faster rate with a view to expanding the handling capacity of the national interurban automated telephone system. At the same time, we must develop settlement telephone communications as an inseparable aspect of interurban communications. The currently existing clusters of connecting lines are being expanded in accordance with changes in the telephone traffic and new clusters will be installed between the Crosspoint AMTTs [Automated Interurban Telephone Exchange] in Sofia and the automated telephone exchanges in nearly all okrug centers. Connections between the individual VATTs [Internal Automated Telephone Exchange] and RATTs [Rayon Automated Telephone Exchanges], and the AMTTs are being increased. For example, the percentage of such increases in RATTs 74, #75, #24 & 25 is in excess of 420; for the others, it ranges between 50 and 300 percent. Connections for automatic dialing between 6 okrug cities will be increased [Plovdiv-Ruse, 211 percent; Plovdiv-Varna, 113 percent; Stara Zagora-Vratsa, 325 percent; Varna-V. Turnovo, 65 percent; St. Zagora-Burgas, 82 percent; Plovdiv-Khaskov, 56 percent, etc.

Connections between settlement automated telephone exchanges and the remaining 6 Crosspoint AMTTs will be increased as well by 40-45 percent.

By the end of 1983, another 35 settlements of important national economic and cultural significance will be included in the national automated telephone system.

The existing AMTTs will be equipped with the necessary testing and measuring apparatus and instruments meeting modern technical requirements.

We shall continue to improve the training of the operational personnel, side by side with quantitative and qualitative new technical developments. We are convinced that the young specialists who will be graduating from the Avram Stoyanov PIS [Polytechnical Communications Institute] in the subject of communications equipment, from the technical higher educational institutions and specialized technical schools, will be properly trained to handle modern equipment.

[Question] Telephone communications in Sofia are a tender spot in the system. How will they be improved?

[Answer] The directions for their improvements were outlined by Minister Pando Vanchev in his letter to the STTS [Sofia Telegraph and Telephone Stations] and personally to its director, Engineer Kosta Petkov. They must be implemented in full. Specifically, before the end of the year, instruments for the automatic testing and preventive control of equipment will be installed in 20 ATTs [Automatic Telephone Exchanges], i.e., it will affect 200,000 subscribers. The remaining exchanges will be supplied with the same equipment in 1982. This will facilitate the manual work of the mechanics and reduce the time spent in testing. In the third year of the five-year plan, the capacity of the telephone exchanges in the various districts in the capital will be expanded. More than 12,000 new telephone sets will be added to the ESK 10,000 E Crosspoint quasi-electronic settlement exchange. Before the end of 1983, the intraokrug telephone communications system in the suburban area will be completed, thus increasing direct dialing

facilities. The handling capacity of current exchanges will be expanded by increasing the number of group systems along the individual steps, based on traffic observations and measurements. New services will be offered, such as shorter automatic dialing, circular transmission of communications, printouts showing the length of conversations, etc.

As to breakdowns and their prompt elimination, several organizational steps have already been taken. The reliability of multiple-pair telephone cables will be improved as a result of automated pneumatic control, preventive wire and set repairs, mechanized maintenance of the network by the Ministry of Posts and Communications, greater control over performing personnel, etc.

A special program for upgrading skills is being implemented through courses and on the job training schools. A system of technical and organizational measures for faultless work has been designed.

[Question] What are the problems facing telegraph communications in 1982?

[Answer] We must complete the installation and commission the electronic International Automated Telegraph Exchange. The proper cadres are being trained to provide qualified services. A national grid will be switched to the MATgTs [International Automated Telegraph Exchange].

Another basic task will be the installation of another 480 channels and the reorganization of about 64 of the existing telegraph systems in order to ensure the more effective utilization of the automated telegraph network.

We are also resolving the problem of procuring, refining and preparing for use, electronic teletype machines in the telex and gentex circuits.

Skill improvement courses will be continued together with meetings for the exchange of leading production experience among telegraph operators. New telex and gentex instructions are being drafted.

[Question] The development of the radio relay network offers great opportunities for broadening telecommunications and, specifically, for increasing the exchange of radio and televisition programs and the number of interurban telephone communications. Are there any new aspects in the operation of such equipment and any expected results for the immediate future?

[Answer] A network of wide-band radio relay lines has been developed in the country for the transmission and exchange of radio and television programs and the establishment of automated interurban telephone communications. The high quality and reliability of the transmitted information and the possibility that programs can be exchanged within the framework of the Intervision and Eurovision systems are secured with the help of transistorized and automated equipment. The circuit is used by the Bulgarian television and radio and as a transit facility for programs from Western Europe to Greece and Turkey. Facilities have been created for the conversion of Bulgaria into a transit center for telephone and telegraph traffic between Western and Central Europe, on the one hand, and the Orient.

With the existence of such material and technical facilities, the problem of improving the maintenance and servicing of radio relay lines assumes priority. The building of unmanned radio relay stations is becoming increasingly topical. Available experience and the organization of regional laboratories have created prerequisites for the normal operation of intermediary radio relay stations without permanent technical servicing personnel. Consequently, a high percentage of the personnel required for the commissioning of new projects will come from within the system.

The extensive assignments which were set by the twelfth party congress for all of us must be resolved optimally. The technical and operational personnel within the national communications system will be dedicating steady effort to this important work.

The quality and standards of services will be enhanced and the variety of communications services will be expanded.

Answer to Communications Minister

Sofia IMPULS in Bulgarian 15 Dec 81 p 1

[Letter by Engineer Kosta Petkov, director of the STTS [Sofia Telegraph and telephone Stations], in answer to the letter from Pando Vanchev, minister of communications]

> [Text] In its last four issues, IMPULS has published the response of workers and specialists to the letter which Minister Pando Vanchev sent to the collective of the STTS and its director on problems of telephone communications in Sofia and ways to raise them to the level of world standards.
>
> The following is the official answer--a specific program for the implementation of this objective.

Dear Comrade Vanchev:

In answer to your letter to the collective of the Sofia Telegraph and Telephone Stations and to me personally, published by IMPULS in its 10 Nov 1981 issue, we would like you to know that we share in your concern and accept it as an expression of the exceptional attention, concern and assistance given for improving the quality and standards of telephone services in Sofia. This gives us even greater strength and confidence in the development and improvement of communications in the capital.

We are well aware of the fact that in order to complement its major political and socioeconomic functions reliably, the Sofia telephone system must reach worldwide standards in the Eighth Five-Year Plan.

We accept this strategic objective as the primary task and inseparable part of the activities of the country's unified communications system. We see the way to

achieve this in your statement on 4 Dec 1981 at the national meeting of leading communications workers in Sofia: "We are speaking of a unified communication system. This is not an empty phrase, but something big, with a purely human content. Everyone of us must dedicate the necessary willpower, energy and strength to making the system work properly. Even if a single chain, or a single link within the chain is faulty, and even if a single telephone operator fails to do her work as she should,and even if a single enterprise or rural exchange fails to work, the system cannot be unified, cannot be operative. . . ."

Considering the importance of the objective facing the telegraph and telephone stations in Sofia, we call upon the collectives in communications throughout the country to compete and struggle for the daily improvement of the quality and standards of communications services on a worldwide level, accepting the following basic assignments and indicators for the Eighth Five-Year Plan:

The quality indicators adopted will be reached through the mobilization of the creative efforts of the workers and specialists of the Sofia Telegraph and Telephone Stations in the following directions:

Installation of new equipment for the technical maintenance and operation of automated telephone exchanges; to these ends, 20 automated equipment control systems for 200,000 telephone subscribers will be installed before the end of 1981 and for the remaining 80,000, in 1982;

Existing facilities will be expanded and used more compactly in order to upgrade handling facilities and ensure the redistribution of traffic sources on the basis of traffic observations, measurements and computer systems analysis;

Worn-out cables and installations in automated telephone exchanges will be replaced as a result of capital repairs and reconstruction;

New exchange equipment will be installed in automated telephone exchanges with a view to the gradual replacement of current equipment;

Breakdown reports by junctions and improvements in dispatcher repair services with the help of new equipment and on the basis of Soviet experience, will be centralized.

Activities related to the quality of the services provided by systems numbers 121, 122, 123, 144 and 145 will be dispatcherized with the installation of "industrial television" and "traffic control of service requests" systems;

Technological facilities will be expanded and improved and new facilities will be installed for telephone services with the help of computers;

The operational reliability of connecting and trunk telephone cables will be improved with the help of automated pneumatic control facilities;

Control over the technical maintenance and operation of the telephone network will be improved with the introduction of additional quantitative and qualitative indicators based on the new economic approach and its mechanism;

Work related to the review and allocation of requests for new telephone sets will be centralized;

The organizational structure of the Sofia Telegraph and telephone Stations will be improved in accordance with the requirements of the economic mechanism at the present stage.

The economic, party, trade union and Komsomol managements will direct the overall economic, party-political, ideological and educational work toward the further mobilization of the efforts of workers, specialists and the entire labor collective for the successful implementation of the tasks based on the resolutions of the Twelfth BCP Congress and the criteria set forth in your letter on upgrading the quality of communications services in the capital.

These indicators and organizational measures will be the foundations of the work which the STTS will do in the future. They will be multiplied, enriched and developed steadily through new suggestions and the discovery of additional possibilities by the entire collective.

a) № по ред	b) ПОКАЗАТЕЛИ	c) Мерна единица	1981 г.	1982 г.	1983 г.	1984 г.	1985 г.
1.	Повиквания, завършващи с разговор.	%	35	40	45	50	55
2.	Глухи, шумни, грешни и двойни връзки.	%	8	7	5	4	3
3.	Претоварване на централите „заето" по съединителните пътища.	%	13	11	9	7	5
4.	Заявки за повредени телефонни постове.	%	2	1.8	1.5	1.3	1
5.	Отстранени повреди извън контролния срок	%	6	5.5	5	4	3
6.	Повреди на монетните телефонни апарати.	%	7	6	5	4	3
7.	Проведени разговори извън контролния срок от София към другите селища.	%	7	6	5	4	3
8.	Неизпълнени поръчки за междуселищни телефонни разговори.	%	0.10	0.09	0.08	0.06	0.05

Key:

a. Number
b. Indicator
c. Measure, in % of 1981
1. Dials with conversation
2. Unclear, noisy, wrong and double connections
3. Overloading of "dizzy exchanges along connecting systems
4. Records on damaged telephone sets
5. Late damage repairs
6. Damaged coin-operated telephones
7. Telephone calls from Sofia to other settlements outside the control
8. Unfulfilled requests for interurban telephone conversations

Deputy Minister Kurdalanov Interviewed

Sofia IMPULS in Bulgarian 15 Dec 81 p 1

[Interview with Panayot Kurdalanov, deputy minister of communication, conducted by Asen Petrov]

[Text] [Question] Communications construction achieved remarkable successes during the Seventh Five-Year Plan. What general problems will be resolved in the Eighth Five-Year Plan?

[Answer] Indeed, the Seventh Five-Year Plan will remain memorable for the builders of communications installations. It was a time of decisive change both in the struggle for the implementation of the plans and the observance of target dates as well as quality enhancement. I shall not repeat acknowledgments and the high ratings given to our construction organization during that period, for they are well known. We shall try to develop further the tradition already established so that our successes may become even greater. The tasks during the Eighth Five-Year Plan are important and difficult. A very short time has been assigned for some of them. This must become an additional opportunity for the rational utilization of available resources.

The results achieved during the first year of the five-year plan are also good. However, many of the problems of importance to the ministry remain to be resolved, such as:

Increasing the capacity of automated telephone exchanges in many settlements, mainly in Sofia;

Installation of new modern Crosspoint exchanges, operating on a high technical level;

Laying new and expanding existing urban cable telephone circuits;

Developing the interurban telephone circuit with a view to expanding automatic dialing facilities.

The engineering designs for all projects will be secured. Maximum efforts must be made to encourage other departments and organizations to make capital investments.

This, for example, in 1982 Varna will receive another 2,000 cable pairs. Razgrad will receive 4,000 telephone sets and 650 cable pairs; the Knyazhevo district in Sofia will receive 6,000 telephone sets and 2,000 pairs; Burgas will receive 4,000 sets and 5,000 pairs, etc.

[Question] In what direction will technical progress develop? Are you planning the use of new equipment and technology?

[Answer] On the basis of the resolutions of the Twelfth BCP Congress, a program for the accelerated application of technical progress during the entire Eighth

Five-Year Plan was drafted as early as last July. The task is to increase public labor productivity by a factor of 1.25 and that of construction output profits by a factor of 1.2 and to reduce outlays of materials and raw materials by about 2 percent, compared with 1980. In the year to come, the program will be implemented along the following lines:

Use of improved items developed by the BRV [Development and Application Base] and the branches of the Telekomplekt ISO [Engineering Economic Organization], including a 25-pair connection clump for ATTs and VChU, a connecting and dividing sleeve for as many as 200 pairs, for plastic cables, cable distribution boxes for 1,000 and 2,000 pairs, new cable terminals for the STM [Sofia Telephone System] blocking systems for settlement channel circuits, etc.;

Let us note among the new technologies, the concrete-free laying of PVTs pipes, the manufacturing of gas-proof sleeves for laying cables under pressure, the installation of shell sleeves for plastic cables, etc.

Naturally, a great deal will be done to improve production processes, reduce manual labor and extensively apply the brigade organization system and leading experience. Developing highly productive mechanization and installation, excavation and measuring equipment will be of great importance. This is another basic assignment facing the ministry and the Telekomplekt ISO.

As in the past, we shall rely on the active assistance of rationalizers and inventors. They will help us to eliminate many so called bottlenecks. It is the duty of the Telekomplekt ISO to fulfill its plan for rationalization and invention activities, worth approximately 1.6 million leva for each individual year of the five-year plan. This plan is consistent with its possibilities and I believe it will be fulfilled ahead of schedule.

[Question] The problem of quality is directly related to cadre training. What specific measures are being taken to upgrade the skills of specialists in communications construction?

[Answer] The updating and reworking of curriculae and plans in accordance with the requirements and dynamic changes in communications will be the new feature in 1982. Examinations will be given and courses offered to technical managers at all levels. In 1982, 590 performing workers will attend courses for upgrading skills and promotion in grade. Special courses will be offered from the very start of 1982. Attention is being paid to language training as well. We shall continue to hire young specialists trained at higher educational institutions, particularly graduates of the Avram Stoyanov PIS and technical communications schools. In 1982 alone, we shall hire an additional 42 young specialists.

A total of 21 contracts have been signed for the 1981/82 school year. Financing will be provided by the Development and Technical Improvements Fund. A new specialized course will be offered at the Avram Stoyanov PIS in 1982. The trainees will do their practical work in our construction branches. More intensive 45-day courses for cable installers will be offered as well. In addition to the technical schools, such courses will also be offered by the respective contruction administrations.

[Question] Some branches of the Telekomplekt ISO have already fulfilled their annual plans. What, in your view, is the reason for this success?

[Answer] So far, this applies to the ISMU in Sofia and the Isproekt IPP [Institute for Study and Design], as well as some branches of the TsMU [Central Installation Administration] and some construction groups. I believe that the decisive factor here was the good organization of the work and the effective utilization of the available manpower and equipment. An excellent rating was given to the projects completed by the ISMU [Construction and Installation Administration Institute] in Sofia. Bearing in mind the fact that this administration is in charge of implementing most of our construction programs, its success is indeed remarkable. I believe that this year as well, the construction workers will be among the first to fulfill their plans ahead of schedule and to report the achievement of high successes. They have the necessary strength to continue successes in 1982. The ministry's leadership has assigned the construction plans to them and trusts them completely.

Unquestionably, investors, designers, construction workers and workers in material and technical procurements will make the necessary efforts to fulfill the program earmarked by the Twelfth BCP Congress, leading to the full and extensive application of the economic approach to the work.

5003 CSO: 5500/3005

CBU TO RESTORE ELECTRONIC MEDIA COOPERATION

FL111359 Bridgetown CANA in English 1816 GMT 10 Feb 82

[Text] Bridgetown, Barbados, 10 Feb (CANA)--The Barbados-based Caribbean Broadcasting Union (CBU) said today it was on the verge of restoring regional electronic media cooperation to the high levels of the early 1970's.

The CBU, headed by Trinidad-born broadcaster Jones Madeira, groups radio and TV systems in the English and Dutch speaking Caribbean.

Madeira said that recent meetings of the organisation's management committee and television programme planners, held in Suriname had set the pace for the implementation of a number of projects to "enable the CBU to function as one of the pillars of the regional mass communications infra-structure."

He added, however, that success will depend on the commitment of member systems to regional co-operation, and on some of them graduating from a persistent level on nonchalance which has oftimes resulted in serious embarassment to the CBU and some of its individual officials.

Madeira said the management committee was firm that member systems who do not show any desire in living up to their commitments under association with the CBU will have to be left behind now that the organisation was making efforts to move forward.

The CBU secretary general said that the organisation has approached international organisations for assistance in undertaking its projects, which included activities ranging from the production of programmes in the economic, political, social and cultural development of the Caribbean, to the training of broadcasters of the region.

One such approach has been made to UNESCO under the International Programme for the Development of Communication (IPDC), and its request was to be among the numerous projects for consideration at the recent meeting in Acapulco, Mexico.

On the CBU meetings in Suriname, Madeira said projects discussed include special coverage of the projected Caribbean community (Caricom) summit, the St Lucia and Bahamas elections, and also working closely with the Caricom secretariat in developing mass media programmes on the occasion of Caricom day 1982 and the 10th year of the Caribbean community and common market.

The CBU secretariat is also working on plans for the mounting of production teams in the Caribbean to produce radio documentaries on the contries in an effort to up-date the series which was successfully done in 1971.

In the field of sport, the CBU is looking at the possibility of joint coverage of the commonwealth games in Brisbane, Australia, later this year, and is already planning for next year's prudential cup and the 1984 Olympic in Los Angeles.

The CBU has just completed a project which enable cricket lovers in the region to be kept abreast of the West Indies cricket tour of Australia, with noted Barbadian commentator Tony Cozier, being contracted to add the West Indian perspective to the broadcasts from down under.

Madeira said that plans were being worked out with the Caribbean Institute of Mass Communications in Jamaica (CARIMAC) for organising special training courses for regional broadcasters.

The courses he said were being designed to satisfy the needs of broadcasting systems who, because of limited human resources, were hard put to send personnel for extended periods of training.

CSO: 3025/1022

CHAHAR MAHAL-BAKHTIARI TELEPHONE NETWORK EXPANDED

Tehran KEYHAN in Persian 2 Feb 82 p 8

[Interview with Engineer Hoseynifar, director general of Department of Communications]

[Text] Shahr Kord. Since the beginning of this year [21 Mar 81] till present, 4,160 telephone units have been installed in the Province of Chahar Mahal and Bakhtiari. Also, work on providing 500 telephones for Farrokhshahr began on 21 January this year.

While making this announcement, in a conversation with IRNA, Engineer Hoseynifar, director general of the Department of Communications of the Province of Chahar Mahal and Bakhtiari, stated: "Of the 4,160 telephone units, 3,500 of them were installed in Shahr Kord, and the remaining 660 of them were installed in the areas of Hafshehjan, Bon, Sefid Dasht, and Faradonbeh for qualified applicants."

Likewise, in order to facilitate intracity connections, five telephone booths have been installed in various places in Shahr Kord, and a radio unit has been installed in Lordjan, which are now in operation."

He added: "In conjunction with all the construction operations of this plan and for further accommodation of the public, a long-range antenna has been installed in Lordjan which can make connections, both inside and outside the country, for the residents of Lordjan. And right now, 40 percent of these construction operations have been completed."

In another part of his speech, the director general of communications of the Province of Chahar Mahal and Bakhtiari, added: "Microwave facilities at Shalamzar and cable-laying for the telephone centers of the towns of Hafshehjan, Bon, Sefid Dasht, Baldaji, Faradbondeh, and Farrokhshahr have been completed and put into operation."

Furthermore, construction work on building communications centers in the cities of Saman, Borujan, Farrokhshahr, and Parsan has begun, and technical facilities for carrier operations have been expanded for Borujan and Bon.

He added: "Wire-laying on communications lines for the rural localities of Chulicheh, Hureh, and Taganak as well as installation of overhead telephone cables for Lordjan and other measures have been carried out by the Communications Department of Shahr Kord this year."

Brother Hoseynifar added: "The plan for parts of Shahr Kord that do not have underground cables has been prepared and will be carried out shortly; and together with the implementation of this plan, 1,000 more telephone units will be installed."

He then added: "The plan for installing cables for 1,000 automatic telephone units has been formulated for the city of Parsan, and it will be implemented shortly."

CSO: 5500/5327

BRIEFS

RADIO BROADCASTING BEGINS--Iranian Prime Minister Mir Hoseyn Musavi inaugurated a 1,200 kw radio station in (Shahbahar) today on the anniversary of the Islamic revolution. The radio station has started broadcasting. [GF111755 Zahedan International Service in Urdu 1530 GMT 11 Feb 82 GF]

NEW RADIO TRANSMITTER--The Iranian prime minister attended the inauguration of the new radio transmitter in Chah Bahr in Sistan Va Baluchestan Province yesterday. The transmitter's power is 1,200 kw. [GF110930 Tehran International Service in Arabic 0700 GMT 11 Feb 82 GF]

CSO: 5500/5324

TRANSPORTATION, COMMUNICATIONS IMPROVEMENTS SAID TO BE FORTHCOMING

Beirut AL-IQTISAD WA AL-A'MAL in Arabic No 34, Jan 82 pp 38-40

[Interview with Sadoq Ben Jomaa, minister of transport and communications; date and place of interview not specified: "Sadiq Ben Jomaa Tells AL-IQTISAD WA AL-A'MAL the Problem of Telephones Would Be Solved Once and For All in 1985"]

> [Text] Renovation plan for fleet of ships and airplanes: the choice is between Boeing and the Airbus.
> The solution to increasing pressure on cities lies in broad economic and administrative decentralization.
> The Tripoli-Sfax railroad project has been revived, and we hope to proceed with implementation.
> The joint shipping route with Morocco will be operated in two directions; anticipated losses will amount to 6 million dollars a year.

A few weeks before being re-elected in the National Assembly elections, AL-IQTISAD WA AL-A'MAL interviewed minister of transport, Mr Sadoq Ben Jomaa. The interview covered the various affairs of transportation and communication in Tunisia, and it also covered the reality and the future of Moroccan-Arab cooperation in these two sectors.

It is known that Mr Ben Jomaa is a competent man who works hard. His activities and responsibilities are numerous. But above all, he is kind, patient and close to people, spontaneously shunning the trappings of power. Actually, his simplicity and his gentleness conceal the depth and courage of the positions he assumes, positions which became clearly evident when he was tested.

Because Ben Jomaa is a man of knowledge, of action and of dialogue, many people think he is qualified to play an effective role in the next stage which by nature will be a pluralist stage that will test the open-door policy.

The interview follows [a biographical sketch]:

Sadoq Ben Jomaa

--Born in Djerba in 1932.

--Received his secondary education in Saddiqi College in Tunis. He studied engineering at (Pont et Chaussees) College where he graduated in 1958.

--He began public service in 1960 as chief engineer in public works and director of the port of Tunis.

--In 1963 he headed the National Transport Company; then he headed al-Janub [the South] Bank in 1968. During the same period, in 1969, he headed a Tunisian-Italian syndicate for oil products.

--In 1969 he was appointed undersecretary of state for social affairs; then in 1971 he was appointed general manager in the Ministry of [Supply].

--He was a member of the Central Committee of the Socialist Destourian party between 1964 and 1974. He is a member of the party's Political Bureau and a member of parliament, representing north Tunis.

--He headed the Union of Tunisian Engineers between 1967 and 1978. He was re-elected to that position in 1980.

--He also headed the Arab Union of Engineers in 1975-1976.

--He was elected president of the International Alliance of Engineers' Unions in 1975, and he was re-elected to that position in 1977 and 1979. He still holds that position.

--In May 1981 he was elected honorary chairman of the Arab Organization for Solar Energy.

[Question] To what extent has the development in the transportation and communications sector been able to meet the needs of the Tunisian economy?

[Answer] I believe that the efforts we made have been significant and continuous. Tunisia now has an advanced and a highly efficient infrastructure which includes roads, local airports and regular transportation lines on land, sea and air. Because of the development of its internal and foreign communications, Tunisia's connections with the outside world now are effective. Initially, these connections were directed specifically toward Europe because of the strength of economic relations with the countries of the north Mediterranean because European tourism is developing, and because of workers' traffic and other such factors. In a second stage, however, the situation became more balanced, first, for political reasons and, second, for economic and tourist reasons. For some time now there has been a growing tendency to achieve closer ties with the Arab countries in the east and in the west, with West Africa and with a few important points in Asia and Africa. This development took place along two lines: in Tunisia air transport routes were developed so that these areas can be reached

regularly and more frequently than they had been in the past; and in the Arab companies themselves there was development: most of them operated regular routes to Tunisia. We are now on the verge of a new development. We are thinking of opening a route to Muscat and Oman, and we may have one to Qatar on the Gulf. We are also thinking of starting a route to Nouakchott and Dakar before the end of the year. There is a project to build a new airport for the capital, Tunis; that airport will be located 30 kilometers from the city.

Plan To Enlarge the Fleet

[Question] The renovation of Tunisia's fleet of airplanes is a subject that is being discussed. What are your priorities in this regard, and have you reached a decision regarding the kind of airplanes that would be suitable?

[Answer] The matter will be decided soon in the context of making the final revisions in the sixth development plan and setting up an advisory program for Tunis Air. At any rate, what we are interested in is testing airplanes that would be suitable to our system of air [traffic] and would provide that system with a maximum measure of economic feasibility. This naturally requires keeping up with development and choosing new airplane models that were specifically designed to provide the greatest fuel economy, the least damage to the environment and the most appropriate economic capacity. I believe that in practical terms the choice is between small and medium size airplanes like the Boeing 767 and 757 and the Airbus A-310. We will also take delivery of an Airbus A-300 in the spring of 1982 which we had previously ordered, and we still have an option on a second airplane of the same model.

[Question] How do you evaluate performance standards in the Tunisian fleet of airplanes, and how do you evaluate the development of Tunisian technological skills in the field of aviation?

[Answer] Standards are good. Of course productivity can be increased. In a developing country we must always be thinking about the ideal use of human and material resources, and this is what we are doing right now. Tunis Air, for example, provides full maintenance for its own airplanes. Extremely competent Tunisian technicians do 100 percent of the general overhauling of the airplanes. It must be mentioned that maintenance is a principal part of acquiring aviation technology. Maintenance is a very expensive process when it is carried out abroad. This may be the reason why some Arab airline companies and even non-Arab airline companies are thinking about having their maintenance work done at the workshops of Tunis Air. Advanced communications in this regard are underway. There is only one company or two in the Arab countries where native technical workers carry out all the maintenance for their airplanes. All airplane crews are also Tunisian citizens, and we do not have non-Tunisian citizens on board the airplanes of our national company. This technical development is based on a training and preparation plan that began a short time after independence.

In Tunisia there is a higher institute from which pilots, technicians and air traffic controllers graduate. The latest "event" in this field occurred when the first female pilot in Tunisia, and perhaps in the Arab world, graduated from this institute. She is 'Aliya al-Manshari. She was one of the top students in her class. We also concluded an agreement with Saudi Arabia; it will lease airplane crews from Tunisia in some seasons.

[Question] Does the rate policy which you are applying take into account the needs of the tourist sector?

[Answer] There are two kinds of rates. Charter rates are those that are reduced to encourage tourism. These rates are applied to regular flights, and we have a good share of the charter market. Then there are the ordinary rates for open tickets and for excursion tickets which have a time limit. We give a reduction on these rates to Tunisian workers abroad.

Among significant developments in this regard is the tendency to standardize transportation costs to Tunisia regardless of the destination point. This means that one will be able to fly from Paris, for example, to the capital, Tunis, to Gafsa or to Djerba for the same cost. The purpose of this measure is to encourage tourism.

[Question] Is there cooperation with Morocco in the field of transportation? What are the most notable projects that are being discussed to link the countries of the Maghreb?

[Answer] There is cooperation in some fields, but so far that cooperation has not been proceeding on a schedule and in an adequate manner. We have good ties with Algeria and regular bus lines with all areas in Algeria. We are now thinking of establishing a joint transportation company to link the two capitals, Algiers and Tunis. There is a railroad across Morocco which was inaugurated in 1975. It ties Algeria, Morocco and Tunisia, but we do not have a railroad to Libya. However, there is a plan for a railroad line from Sfax to Tripoli. The feasibility of the plan has been confirmed [even though] discussions about the plan had come to a standstill after the misunderstanding which occurred in 1978. However, we revived the project during the recent visit to Tunisia by [Libya's] secretary of the economy, Mr Abu Zayd 'Umar Durdah. We hope the project will eventually be implemented. It has been placed on the agenda of the joint committee which was formed by both countries to look into the establishment of joint projects.

The Joint Shipping Route

As far as Morocco is concerned, there is the joint shipping route which we agreed to utilize together for the purpose of ensuring regular routes between the principal ports on the northern shores of the Mediterranean and in the Gulf. This route will operate in two directions: the first one will be from Casablanca to the ports of the east, and the second one will be from Tunis to the shores of West Africa. Although the route will cost Tunisia and Morocco about 3 million dollars in losses each per year, we decided to begin operating it. We will then try to win support for it from

exporters and importers or from the governments whose ports and, accordingly, foreign trade are served by this route.

[Question] Are there any developments in the area of communications systems? Where is Arab cooperation in this field?

[Answer] As far as Tunisia is concerned, we have direct outside communications with about 20 countries. These are made possible by "Inelsat" satellites. However, our communications are relayed through London and Paris because we do not yet have an earth station. At any rate construction work on (al-Dayqah) [earth] station, which is being built by Japan, has begun. With maximum modifications it will be ready in 2 years. We will then communicate directly with the outside world.

Regarding Arab cooperation in the communications field, we were pleased that the recent meeting of Arab ministers of communication, which was held in Oman last April, finally approved the Arab satellite project. This was done after the loss of valuable time--about 5 years at least--because of problems that were not fundamental. It is estimated that work on this satellite will be completed and that it will be launched in 2 or 3 years at the most. This satellite will assure [communications links] with all the Arab countries and with a number of neighboring countries as well. It will make immediate and direct communications between these countries possible.

The Problem of Telephones Will Be Solved Soon

[Question] When will the problem of telephones in Tunisia be solved?

[Answer] The difficulty as far as telephones are concerned lies in the fact that demand for telephones grew at a rate much greater than that of investments. This shortage which has grown will be solved in the sixth plan which includes an ambitious investment program whose purpose is to achieve a fundamental and a long-term unfettering of telephone services. This would be achieved in a maximum period ending by the end of 1985. Initially and within the span of 3 years the number of existing lines, which are now about 140,000 lines, will be doubled; 84 percent of them will be automated. In the second stage--that is, until the end of the plan--the number of lines will be tripled, and that number will approach 500,000 lines; 99 percent of those lines will be automated. That is, all lines will be automated with the exception of lines in a few very remote areas whose connection with the automated telephone system cannot be justified economically. This program will require 183 million dinars in investments--approximately 350 million dollars. Expenditures for telephone communications during the previous 5-Year plan did not exceed 50 million dinars--about 95 million dollars.

[Question] What is being prepared for the public transportation sector, especially to relieve the pressure on cities and meet the large demand from citizens?

[Answer] There is a two-way solution which in time has to produce effects.

On the one hand we are trying to increase investments so that the change in the number of buses would always be greater than the change in the number of people. On the other hand, a similar effort is underway to complete transportation services so as to meet the principal needs and facilities and continue improving the quality of those services. In this regard there is a tendency to increase the number of vehicles which are licensed for public transportation--taxi cabs and other vehicles. We are also continuing to expand the railroad system so that railroad services can reach the suburbs and numerous coastal cities. We are also making plans to implement a project for a rail car system--not a subway--to alleviate traffic problems and provide an additional [transportation] service. An additional lane will be provided, and rail car junctions cutting across the streets of the capital will be avoided.

Naturally all the problems that you mentioned previously--regarding the matter of telephones, transportation or other services--do not stem only from a shortage in equipment and investments, but they also stem primarily from a demographic imbalance and the strong concentration of various economic activities or administrative [activities] in the capital. This is a general problem in the world, as is well-known, and especially in developing countries. It can only be confronted by bold decentralization steps that should be taken not only throughout the republic, but also in the capital. Services are to be decentralized so that citizens would not have to come to the capital unless they have very strong reasons to do so. Economic decentralization [is to be achieved] in order to bring about a better distribution of economic activity and of economic institutions such as industries, banks and stores. Naturally, action in all fields must be integrated to reduce the effect of the city as an attraction and to achieve the greatest measure of stability on the population scene.

8592
CSO: 5500/5006

TELECOMMUNICATIONS IN BLACK AFRICA REVIEWED

Dakar AFRICA in French nº 137 Jan 82 pp 63-65

[Text] The developed nations devote 0.9 percent of their GNP to telecommunications, whereas the African nations south of the Sahara give them only 0.25 percent. That is one way of saying that this kind of service, vital to any country's economic development, is still inadequate, both quantitatively and qualitatively, in most countries on the Dark Continent, and at a time when the basic costs of telecommunications are falling by comparison with other forms of communication.

In its report on "Accelerated Development in Sub-Saharan Africa," the so-called Berg Report, the World Bank underscores the fact that the lack of swift and reliable telecommunications systems hampers development across the board, generating considerable waste of management skills and unnecessarily burdening the transportation system. Even though their populations are scattered -- which normally would increase the role of telecommunications -- the Sub-Saharan countries, which have the same per-capita income range as the poor countries in South Asia, nevertheless have fewer telephones and, over the past few years, the increase in their numbers has been far slower in Africa than in the poorer South Asian countries (4 percent per year, as opposed to 10 percent). The "global strategy" thus calls for beefing up management, proper training of personnel, and good maintenance (a very important point in rural and interurban service), as well as expansion of the national systems.

The Berg Report thus urges the governments of African countries below the Sahara as well as donor countries to assign higher priority to rapid development and expansion of telecommunications services and, by offering assistance in the areas of training and management, to contribute to the establishment of organizations equipped to manage them. In this area, the report points out, it is very seldom that we see projects devised by manufacturers and consisting solely of providing equipment and technical training directly applicable to its operation amounting to very much in the way of sound outside help. It is essential first of all to adopt a broader approach, one aimed at developing, enhancing, and encouraging the emergence of local capabilities. The highest priority sould be assigned to the development of

local and interurban telecommunications systems: that effort should be supported, as soon as feasible, by modernization and expansion of international links.

Plain speaking like this, stripped of any tinge of paternalism but unfaraid of realism, is something of a change from the cautious oratory we are accustomed to hearing from the loftier echelons of international comity, in that, for the first time, it treats the African nations as "adults."

And yet, since independence, considerable efforts have been made by the various governments, in view of the fact that in many instances they have run into financial difficulties of such magnitude that they had perforce to deal first with the most urgent problem.

The Panafrican telecommunications system (Panaftel) is, as the Secretary General of the International Telecommunications Union (UIT) pointed out, "the the instrument of choice for developing telecommunications in Africa, on the basis of the instructions given by the heads of state to whom UIT delivers a report each year on its performance."

Installing the System

This system, begun in 1972 following the decision of OAU states to establish a coordinating committee which would include the African Development Bank (ABD), the United Nations Economic Commission for Africa (UNCEA), and, later on, the Panafrican Telecommunications Union (UPAT), is still, 9 years after its founding, encountering a great many difficulties, in large part stemming from the vast scope of the program: development of telecommunications at the national, regional, and international levels. The national systems today are not invariably able to command technical teams adequately qualified even to assure operation and maintenance of existing systems, often lacking engineers capable of establishing and executing a planning policy for new equipment. Further, the priority assigned to urban areas still stands in the way of providing all the desirable investments for developing telecommunications in rural areas.

At the close of 1980, the advances achieved in installation of the Panaftel system made it possible to install 20 international telephone exchanges, 33 international telex exchanges, close to 40,000 kilometers of Herz-band carriers, 4,548 kilometers of transhorizontal systems, and 1,800 kilometers of coaxial cable. In addition, a 5,500-kilometer underseas cable now links Casablanca with Dakar, Abidjan, and Lagos, and it is to be extended into Central Africa. To this network of underseas and ground cables 50 stations have recently been added forground reception of satellite communications, utilizing the Intelsat system, which provides African countries with an international, intercontinental, and sometimes national service. As of now, 2 million subscriber lines have been connected into a system that has 3 million telephones.

These achievements bear witness to an encouraging advence toward completion of this gigantic undertaking. Financing, though, has yet to be found for completion of several vital arteries, such as the links between Bangui (Central Africa) and its neighbors, such as Congo and Cameroon.

The Panaftel Goal

When the time comes to observe the 10th anniversary (1978-1988) of the United Nations transport and telecommunications effort in Africa, all international and domestic telephone communications in the African countries should be automatic. The Panaftel system has been designed so that the selected trunk arteries will run through the main population centers of each country they cross, so that those arteries which cross frontiers can handle domestic traffic at various points along their course. Hence the determination of the experts to standardize rates for communications throughout the Panaftel system.

The reason is that the high rates in effect in several countries could slow increase in the number of people with telephones and in the number of people using the system. Clearly, though, a telecommunications infrastructure is a very large investment indeed, and one that must be fully utilized to justify its expense.

Furthermore, the development in African telecommunications has not so far made it possible, as would have been desirable, to set up research and development centers that could assess the compatibility of new technology with existing installations and compare the available technologies with a view to selecting those best suited to Africa.

Role of Regional Organizations

In West Africa, the Economic Community of West African States (CEDEAO) has moved to foster establishment of a regional system on a sub-regional basis. Theirs is an example that other sub-regions might well follow in devising their own plans. There are, however, several clusters of jurisdictions already working toward that goal. A cooperation agreement was signed in mid-1980 between UIT and the West African Development Bank (BOAD) to encourage improvements in existing telecommunications systems, the provision of new infrastructures, the training of personnel, and telecommunications management. The two agencies agreed to contemplate, in addition to national projects, assessing new plans jointly, as part of the transport and telecommunications decade observances.

6182

CSO: 5500/5666

TV RELAY STATIONS OPENED IN HARARGHE

Addis Ababa THE ETHIOPIAN HERALD in English 19 Jan 82 pp 1, 4

[Text] HARAR (ENA) — Two television transmission relaying stations built here and in Dire Dawa by the Information and National Guidance were inaugurated on Saturday.

The launching of the facilities, built at a cost of 1,200,000 Birr, will have a significant role to play in projecting the momentum of the popular revolution and the socialist path of development, raise the level of the people's Marxist-Leninist awareness and broaden the horizon of popular knowledge.

Built under the directives of the Revolutionary Government and with the cooperation of mass and government organizations in the region, the television relaying station were inaugurated, in the presence of Comrade Girma Yilma, Minster of Information and national Guidance and COPWE Central Committee member, by Comrade Zeleke Beyene,COPWE Central Committee member and COPWE representative of Hararghe Region.

Comrade Zeleke said he was confident that the programmes broadcast over the tow relaying station will both effectively counter enemy propaganda and reflect the enormous construction effort being undertaken by the broad masses.

Speaking earlier Comrade Girma Yilma said Ethiopian Television exposed the ugly and seamy sides of the discredited system and provided added fillip to progressive forces in the drive to untangle the complexities which faced the revolution. The Minister noted that the opening of the two TV-relaying stations was a cause of justifiable pride for those mobilsed in the profession.

The head of the Ethiopian Television Department, Comrade Teferra Gtaew, also spoke on the occasion and said the tranmission relay stations just opened in Harar and Dire Dawa follow a similar move taken in Asmara

earlier and that both represent part of the continuing process of bringing TV programmes within reach of the entire population stage by stage. He pointed out that the two stations will cover urban centres within four adjacent provinces and surrounding areas.

Comrade Teferra stated that due to shortage of certain equipment, it is not at present possible to broadcast all daily TV programmes beamed from the capital. He called on government and mass organizations who have in the past co-operated in preparing public viewing centres and programme reception equipment to continue to do so in future so that the one kilowatt relay station at Harar and the 250 watt relay station at Dire Dawa would enable the residents of the two towns and the surrounding areas to take maximum advantage of the newly inaugurated facilities.

Present during the inaugural ceremony were COPWE Central Committee members, Comrade Merid Negussie, Chief Administrator of Hararghe region, members of the Regional COPWE Executive Committee, other officials, representatives of mass organizations, comrades from friendly countries and invited guests.

CSO: 5500/5680

BRIEFS

NEW KERA AUTOMATIC EXCHANGE--The new Kera automatic telephone exchange, one of four planned for metropolitan Addis Ababa as indicated in the Fifth Five-year Development Programme of the Ethiopian Telecommunications Authority, became operational as of yesterday. A press statement by the Authority said the new facility has initially 8,000 lines which could be extended up to 20,000. It is believed that with the addition of the four new automatic exchanges the public demand for telephone services in the capital will be met fully. The capital cost of the 14-month project was 5,107,328 Birr, according to the ETA. [Text] [Addis Ababa THE ETHIOPIAN HERALD in English 24 Jan 82 p 4]

CSO: 5500/5680

BRIEFS

MARITIME SATELLITE PLANNED--The deputy managing director of the Kenya External Telecommunications Company (Kenextel), Mr. Samson Kipkoech arap Chemai, has said the corporation's Nairobi offices handled 70 per cent of the external traffic services while the Mombasa offices handled the remaining 30 per cent. Speaking during a New Year party for the Kenextel staff at their Mombasa offices, Mr. Chemai said the company earned about Shs. 1,000,000 from external traffic services at Mombasa. He added that the company had spent Shs. 16 million in expanding and improving traffic services. The company planned to build staff houses in Mombasa, he said. He said the company planned to launch a maritime operation satellite in the area to help monitor ship movements in Eastern Africa, adding that most of the company's external traffic was rendered to maritime firms in Mombasa. [Excerpt] [Nairobi THE STANDARD in English 4 Jan 82 p 8]

MONEY FOR RADIO TRANSMITTERS--The minister for information and broadcasting, Mr Peter Oloo Aringo, has said that the government has set aside 200 million shillings for the construction and improvement of radio transmitting stations in areas that have poor signal receivers or none at all. Among the areas to benefit from this project will be Taita-Taveta, Garissa and Meru. Mr Aringo was touring the Musicraft factory which makes radios and radio-cassette recorders in Nairobi's industrial area. [Excerpt] [EA130750 Nairobi Domestic Service in English 1600 GMT 12 Feb 82]

CSO: 5500/5683

BRIEFS

NEW FM, SW CHANNELS--Today marks a milestone in the programme transmissions of the SWA Broadcasting Corporation, with the implementation of a new FM channel and two shortwave channels. As from today, the FM channel formerly utilised for Springbok radio transmissions, will be used during the day for English and German programme transmissions and from 5 pm onwards for the transmission of German programmes. On Saturdays and Sunday, both English and German programmes will be transmitted on this channel. The existing English and German FM channel will be broadcasting the same combined programmes in these two languages and after 5 pm during the week, only the English programmes. Again, as with the new channel, on Saturdays and Sundays, both these languages will be presented in various programmes. The implementation of the new FM channel programme for at after 5 pm during the week, is the start of development for future separate English and German services, in terms of a decision taken by the Board of the SWABC. The present shortwave transmissions of the SWABC are also to be applied for separate SW channels--one just for Afrikaans, German and temporarily English, and the other for transmissions in Herero, Damara/Nama and Tswanas. [Text] [Windhoek THE WINDHOEK ADVERTISER in English 2 Feb 82 p 4]

CSO: 5500/5676

ASSEMBLY URGED TO KILL HAUSA SHORTWAVE BROADCASTING

Kaduna State Legislature

Kaduna NEW NIGERIAN in English 19 Jan 82 p 1

[Article by Aliyu Modibbo]

[Text] **THE Kaduna State Legislature has adopted a resolution calling on the National Assembly to reject the FRCN Amendment Bill seeking to abrogate the existing four autonomous zones—Lagos, Ibadan, Enugu, and Kaduna—which have been broadcasting on shortwave.**

The resolution was adopted yesterday in a motion moved by the Chairman on House Committee of the legislature, Alhaji Dahiru Maigana.

Moving the motion, Alhaji Dahiru said the plan to cancel Radio Nigeria from broadcasting on shortwave was a calculated attempt by some people he described as 'progressives' to deny Hausas from disseminating information in the country.

Alhaji Dahiru said the action was not a wise one especially when Hausa-speaking people constitute more than 80 per cent of the country's population and to whom programmes including news were broadcast on the shortwave.

He argued that Hausas and other tribes in the North who could not understand English but Hausa largely depended on tuning to the FRCN shortwave for education and enlightenment.

Speaking in support of the motion, Alhaji Aliyu Malumfashi, Alhaji Ali Komisina and Alhaji Hassan Wagini condemned the proposed amendment bill and said it was not in the best interest of the nation.

In his contribution, Alhaji Jibrin Mohammed said to abrogate the shortwave was in a way to kill the Radio Nigeria.

He argued that it was a common knowledge that the services rendered by FRCN Kaduna during the country's civil war was a tremendous one adding that its programmes in Hausa encouraged people to always be with their radio sets to receive current information on the war.

He said the bill could be best described as a total denial of right to receive or disseminate information. This, he said, was unconstitutional.

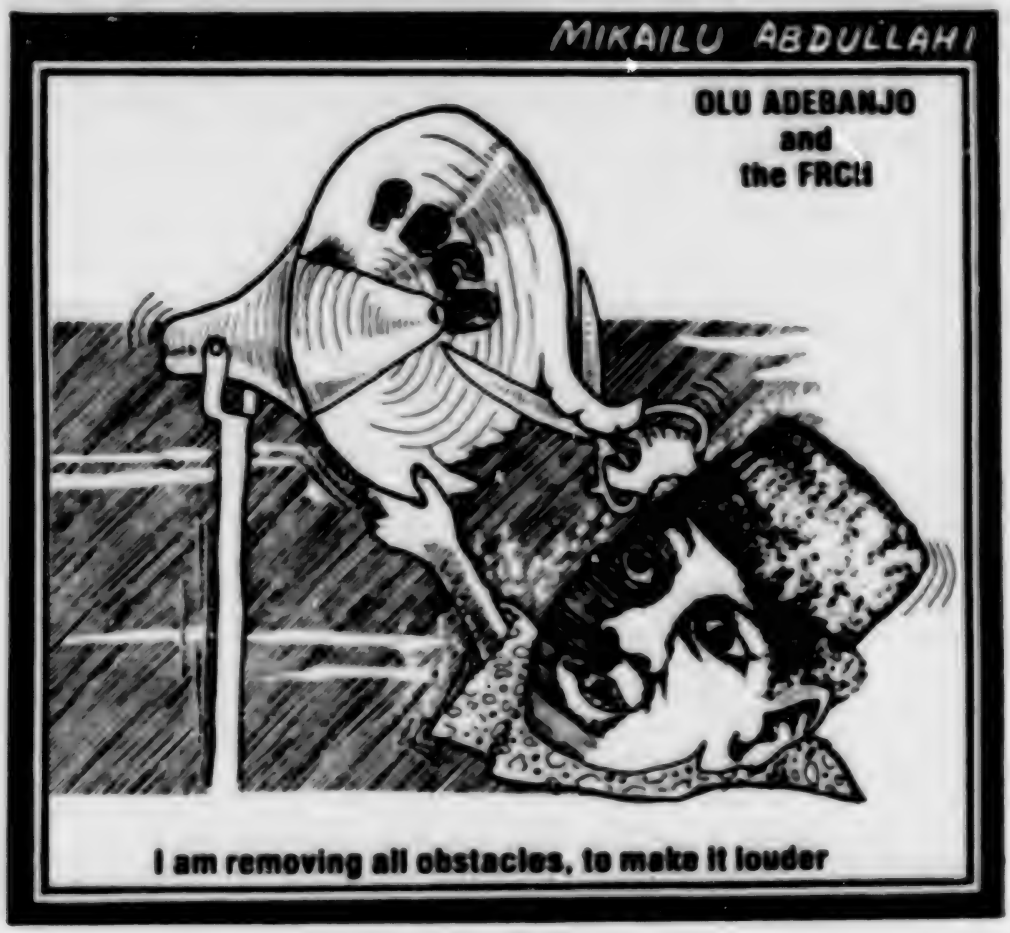
Speaking later, the Deputy Speaker, Alhaji Maccido Mohammed said the action would deny people of Hausa origin residing in the South of the country and in the neighbouring countries from the right to receive accurate account of government activities and other programmes through the shortwave by Radio Nigeria, Kaduna.

Alhaji Maccido said if the bill was passed, it would handicap the Hausa-speaking countries of the ECOWAS from disseminating information about the northern parts of this country.

Cartoon View

Kaduna SUNDAY NEW NIGERIAN in English 24 Jan 82 p 16

[Text]



Opposition Mounts

Kaduna NEW NIGERIAN in English 21 Jan 82 p 12

[Text]

Opposition to the FRCN Amendment Bill has continued to mount in some parts of the country.

In Minna, the deputy Speaker of the Niger State House of Assembly, Alhaji Mohammed Zubairu Kolo, has appealed to the National Assembly to reject the bill.

He said that it was necessary to reject the bill because if approved, millions of Nigerians all over the country would be denied the fundamental right of being heard or exchanging ideas.

Alhaji Kolo made the appeal while speaking during a motion of adjournment on the floor of the House in Minna on Tuesday.

The deputy speaker was also of the view that the bill if approved by the National Assembly would amount to gagging the press.

He said that the matter before the Assembly 'is of fundamental importance to all lovers of democracy and the existence of a free press.'

The deputy speaker said that he would table a substantive motion before the House of Assembly on the issue.

In opposing the amendment bill, the Niger State branch of the GNPP has called for the removal of the Presidential Adviser on information Chief Olu Adebanjo.

In a statement in Minna, its publicity secretary, Alhaji Hassan Maizabura said Chief Adebanjo's continued stay in office was inimical to peaceful coexistence. He called on President Shehu Shagari to intervene in the matter to avoid possible national confusion and a breach of public peace.

The Majority Leader in the Kaduna State House of

Assembly, Alhaji Dauda A. Mani, has also called on President Shehu Shagari, to dismiss his Adviser on Information, Chief Olu Adebanjo, for what he described as 'a mischievious role' the adviser was allegedly playing in mis-advising the President on issues of national interest.

He appealed to the President to use his executive powers to withdraw the controversial FRCN amendment bill now before the National Assembly for continued peace and progress of this country.

In a statement he issued yesterday, the majority leader said the dismissal of the Presidential Adviser on information was necessary to avoid placing the President in more objectionable, difficult and embarrassing situations.

Alhaji Dauda explained that it was not in the interest of the National Party of Nigeria (NPN) nor was it in the interest or aspiration of the majority people in this country for such bill to be passed into law.

He added that he was making the call in good faith to ensure the corporate existence of Nigeria as one indivisible nation through peace stability and good government.

CSO: 5500/5677

BRIEFS

KADUNA IMPORT LICENSE DELAY--The Kano State Governor, Alhaji Mohammed Abubakar Rimi, has threatened to take 'any action deemed necessary' if the state government was not given any import licence for its proposed television station equipment. Speaking to the House of Representatives sub-committee on communication at Government House, Kano last Wednesday, the governor said 18 months after the state government had applied for an import licence, there was still no approval. He described the situation as a bureaucratic attempt to deny the state government the right to establish its own television station while some other states had already set up one. Governor Rimi also said he was not satisfied with the take-over of state-owned television stations by the Federal Government without compensation and called for an urgent review in the interest of peace. He explained that the need for the state government to have its own television station was borne out of what he called 'the inadequate and biased coverage'of state government activities by the NTA Kano. The governor also complained against alleged misuse of television stations by the Federal Government. He was also not happy with the 'unsatisfactory performance' of the P & T in Kano which he said was crippling commercial activities in the state. The chairman of the sub-committee, Mr. Jimoh Damisah told the governor that his complaints would be conveyed to the National Assembly for necessary deliberation with a view to finding a generally acceptable solution. He told the governor that the committee's tour was to meet state and media executives for views on two bills now before the National Assembly. One bill seeking to restructure the Nigerian Television Authority came from the President while the other, a private member's bill, called for the return of NTA stations to the state governments. [Text] [Abdulhamid Babatunde] [Kaduna NEW NIGERIAN in English 25 Jan 82 pp 1, 32]

CSO: 5500/5677

DATA ON TELECOMMMUNICATIONS NETWORK, DEVELOPMENT PROSPECTS

Dakar AFRICA in French No 137 Jan 82 pp 67, 69, 71

[Article by Alassane Dialy Ndiaye, president and director-general of TELESENEGAL [Senegal International Telecommunications Company]]

[Text] Status of International Telecommunications Network

The TELESENEGAL network is made up of the following systems:

--Satellite links

--Submarine links

--International Telephone Relay Center

--International Telex Relay Center.

Links with African Countries by Means of Decametric Waves

Our "Decametric Waves" network has been completely modernized. At present, Dakar is linked directly by "decametric waves" with the following African capitols: Bamako (Mali), Monrovia (Liberia), Brazzaville (Congo), Kinshasa (Zaire), Freetown (Sierra Leone), Niamey (Niger), Accra (Ghana), Cotonou (Benin), Bissau (Guinea-Bissau) and Praia (Cape Verde).

Telecommunications by Satellite

At the beginning of 1972, with the inauguration of the Gandoul earth station, Senegal was one of the first countries on the African continent to adopt satellite communications.

Gandoul has a standard A Antenna.

Senegal is linked by satellite directly to the following countries: Cameroon, the Ivory Coast, Gabon, Upper Volta, Mali, Guinea, France, Italy, and the United States.

In addition to telephone, telex, and telegraph traffic, the Gandoul earth station handles data transmissions and the broadcast and reception of television programs.

Europe-West Africa Submarine Cable System

With a view to diversification of the methods for transmitting its telecommunications traffic, "to avoid putting all its eggs in one basket," Senegal, in cooperation with the Ivory Coast, Morocco, Nigeria, and France, has undertaken the construction of the Europe-West Africa submarine cable system. This system is made up of the following principal sections:

--France-Morrocco (640 links) (Penmarch-Casablanca),

--Morocco-Senegal (640 links) (Casablanca-Dakar),

--Senegal-Ivory Coast (480 links) Dakar-Abidjan), expandable to 640 links.

--Ivory Coast-Nigeria (480 links) (Abidjan-Lagos).

It should be noted that in addition to the Penmarch-Casablanca cable, there are other transmission links from Morocco to Europe; i.e., via Spain, and via France over the Tetouan-Marseilles cable, which has 2,580 telephone circuits inaugurated at the end of 1978.

The Penmarch-Casablanca cable has been in operation since 1973.

The "Antinea" cable (Casablanca-Dakar), (which bears the name of the legendary king of Atlantis, a country which methology locates between Morocco and Senegal) which is being run by two companies, MATELCA (Moroccan Telecommunications Via Submarine Cable Company) and TELESENEGAL, was inaugurated on 27 April 1977.

The TELESENEGAL and INTELCI (International Telecommunications of the Ivory Coast) companies are the developers of the Dakar-Abidjan cable, named "Fraternite," which was officially placed in service on 28 April 1978.

In 1980, "Fraternite" was expanded by means of the Abidjan-Lagos cable, named "Union," which was installed by INTELCI and NET (Nigerian External Communications).

All three of these cables are of the coaxial type and are 1 inch (25.4 mm) in diameter.

International Telephone Relay Center

[Concomitant with the modernization of our international transmission network, we have for sever[illegible]ars been working on the automation of Senegal's international telephone lin[illegible]

Thus, since the beginning of 1977, over 90 percent of Senegalese telephone subscribers have been able automatically to reach persons called in the following countries: the Ivory Coast, the FRG, Belgium, Denmark, Spain, France, Italy, Luxembourg, the Netherlands, the United Kingdom, Switzerland, Canada, and the United States.

Automated telephone service has been in operation for a year between the following countries: Upper Volta, Gabon, Cameroon, Morocco, Nigeria, Brazil and Japan.

The International Telephone Relay Center increased its capacity from 93 circuits in 1977 to 414 in 1981.

International Telex Relay Center

Telex communications are handled by an automatic switching system, with centralized control provided by a computer of the ELTEX type, which was place in service in mid-1978. This center enables us to automate over 95 percent of our international telex traffic.

Senegal's international traffic is characterized by:
--"outgoing traffic" 25 to 30 percent greater than "incoming traffic,"
--"international traffic" dominant over "regional traffic,"
--slow development of telex traffic,
--telegraph stagnation, and
--rapid development of telephone traffic.

Outlook for Development of Telecommunications in Senegal

For a very long time, in Senegal as in most African countries of the Third World, telecommunications were considered a luxury item. However, for the past several years we have perceived in a more precise way the very important role played by telecommunications in the economic and social development of a nation. It is necessary to recognize the fact that telecommunications are a "prerequisite of development." In Senegal, therefore, we are directing our efforts toward the development of urban, interurban, rural and international telecommunications.

In the telecommunications sector, as in the socioeconomic sphere, Senegal adheres to the idea of development by "concentric circles" which can be diagrammed in the following manner: national development effor', combination of development means at the subregional, regional and, finally, international levels.

Outlook for Development of Urban and Interurban Telecommunications

In the next 5 years, an expansion and modernization of the urban telephone and telex network in the Dakar region will be undertaken. The new network will meet the need for data transmission and new services. Several new centrals will be required in this region.

Cities such as Bignona, Sedhiou, Kolda, and Velingara in the south and Tambacounda in the east will be hooked up with the "automated telephone system." This will also be done for medium-size cities in the Kaolack region.

Outlook for Rural Telecommunications Development

Today, telecommunications facilities in Senegal are almost entirely concentrated in the urban areas.

In Senegal, as in practically all the developing countries, we are confronted by this flagrant imbalance between the cities and the rural areas in the communications sector, generally. This problem is rendered all the more difficult to resolve because the needs of the rural areas are extremely difficult to evaluate, and because we know that the telecommmunications installations are almost always deficient at the outset.

Therefore, we Senegalese will make an effort in the future to find effective solutions which will permit the "connecting" of rural areas with the telecommunications network. In this sector of advanced technology, we will doubtless be of very great help. In this connection, the government of Senegal and the USAID, with a view to evaluating the impact of telecommunications on rural areas, are planning to conduct a telecommunications experiment via satellite between Dakar and the rural projects areas of Casamance, a region located in the southern part of the country.

Among other principal objectives, this program proposes:

--To establish via satellite a reliable telecommunications network for the transmission of the data required for rural development;

--To demonstrate the use of telecommmunications via satellite as a support for economic activity, medical coverage, education, training, and the administration of rural communities;

--To demonstrate the value of telecommunications in the development of rural areas.

Outlook for the Development of International Telecommunications

Senegal has already put into operation a well-structured telecommunications network using the most modern means of transmission and switching and having an interesting degree of "diversification."

In the coming years, we will expand our international telephone relay center and our international telex center. As the result of an evaluation of our needs for international circuits over the medium and long term, we have prepared development plans for these centers.

Particular stress will be placed on the development of our telecommunications relations with African and South American countries.

Within this context, Senegal has undertaken projects to extend the "Fraternite" submarine cable and the "Atlantis" system.

The "Atlantis" Submarine Cable Project

The developers of this imposing project are: Deutsche Bundespost, ENTEL [National Telecommunications Company] (Argentina), EMBRATEL [?Brazilian Telecommunications Enterprise], INTELCI (Ivory Coast), ITALCABLE [?Italian Cable Company], the Director General of French Telecommunications, France Cables and Radio, CPRM [expansion unknown], Swiss Post, Telephone and Telegraph Enterprise, the British Post Office, and TELESENEGAL.

The "Atlantis" system is made up of the following two sections:

--Recife (Brazil)-Dakar: 1,800 nautical miles (3,330 km);

--Dakar (Senegal)-Burgau (Portugal): 1,650 nautical miles (3,053 km).

Their capacities are, respectively, 1,380 and 2,580 telephone circuits (4 kHz).

This configuration was selected by the developers after technical and economic studies, taking the following factors into particular account:

--Diversification of the transmission of traffic between cables and satellites to improve the security and reliability of telecommunications relations between the three continents.

--Choice of an intermediate point in Dakar to concentrate the Brazil/Europe and Africa/Europe traffic in a large-capacity network that will permit a supplementary reduction in the cost of the link, on the one hand, and on the other hand will assure direct links by submarine cable beteen West Africa and South America.

The unique nature of "Atlantis" is that it is the first telephone submarine cable in history to link three continents (America, Africa, and Europe).

Work on the "Atlantis" project is well advanced, as several thousand kilometers of submarine cable have already been manufactured and the installation of the "land facilities" [atterrissements] of the system was to begin before 15 November 1981. Inauguration of the "Atlantis" system is scheduled for August 1982.

"Atlantis" will unquestionably contribute to drawing closer the economic and cultural bonds between South America, Africa, and Europe.

8143
CSO: 5500/5660

TV 2/3 PROBLEMS LABELLED 'IDEOLOGICAL'

Johannesburg SOWETAN in English 2 Feb 82 p 9

[Article by Elliot Makhaya]

[Text] It's almost a month's viewing of TV2/3 and, as a critic the whole exercise can leave you with a heart condition. The major barrier is linguistic — five ethnic languages at the push of a button is just too much for even the mightiest of linguists.

And being nosey by profession, I had to let my fingers stray to alternative buttons for TV1 each time I ran into a monumental bore on TV2/3.

Here, the problem is you switch to alternative channels because of the linguistic barrier or sheer rubbish. One may argue that being black I have no excuse not to understand the five languages. But supposing TV1 goes adventurous and introduces Polish or Portuguese and Spanish channel, I bet some folks in this business will be singing my song.

One of my colleagues, Gordon Siwani, whom I regard as an "expert" on Xhosa says to me: "I thought I knew the language, but the Xhosa spoken by Burt Lancaster in Moses is so impeccable it's unreal. It's Xhosa from down under in the Cape mate."

Television stations around the globe have teething problems. That's fact. But TV2/3's "teething problems" seem ideological. And if that's the direction they hope to pursue and win their anticipated four-million viewers, Auckland Park can forget about it.

And if the new service is designed to be in keeping with the Broeders policy of "develop along your own ethnic lines", then the service could be viewed by blacks as an extension of their black radio services. It's an attitude which encourages cultural identification in keeping with the homelands.

During this period of viewing, I noticed a seemingly calculated parade of community councillors and homeland leaders. And the other view seldom hits the little "wonder" box. It's sad journalism.

Newsreaders and programme announcers are still a bit nervous or over anxious. Some of them read the news like there's a time-bomb on their backs. But one finds people like Thalapane Masitenyane, Staupitz Makopo, Fez Wotshela, J M Ramohoebo, Thandi Mesatywa quite engaging.

Reporters on TV2/3 must do their home work before going out for interviews. Because of this, they find themselves instead being interviewed. It's another sad reflection on journalism.

Music and sport, quite frankly, is heading somewhere. I particularly enjoy the Sunday morning chorals and gospel music. Listening to the University of Zululand conducted by Professor Khabi Mngoma, was quite refreshing.

Programmes for kiddies are fairly good. But here there's an inherent danger of the young ones speaking a new language — a mix of Zulu, South Sotho, North Sotho, Xhosa and Tswana. Kiddies have an incredibly receptive mind.

The drama departments of both Tv 2 and TV 3 have hardly started. People would like to see drama on the screen and not radio serials televised as is.

Overall, there's a lot to be done down Commissioner Street and high up in Auckland Park. And one may get over with "teething problems" of being dazzled and dazed by darting from one language to the next in one evening.

Television and radio, if seen as a propaganda media instead of entertainment, will go on having "teething problems". Propaganda can work either way — either shunned or absorbed by viewers and listeners.

CSO: 5500/5678

BRIEFS

COMMUNICATIONS AID FROM SCANDINAVIA--Salisbury--Zimbabwe, Botswana and Zambia are to establish microwave communications links as part of a programme to lessen their dependence on South Africa. The three neighbouring countries signed an agreement in Salisbury on Wednesday covering a R16-million project which will give Zimbabwe microwave access to earth satellite stations in Zambia and Botswana. At present, international telecommunications to and from Zimbabwe go through South Africa. Zimbabwe, Botswana and Zambia belong to the Southern African Development Coordination Conference which aims to achieve economic independence from South Africa for its nine member nations. Zimbabwe Communications Minister Daniel Ngwenya told reporters the microwave project, which will be funded by Sweden and Norway, was also a major step towards the completion of a pan-African telecommunications network.--SAPA-REUTERS [Text] [Johannesburg THE CITIZEN in English 11 Feb 82 p 10]

CSO: 5500/5681

FUTURE PROJECTS OF EUROPEAN SPACE AGENCY OUTLINED

Paris AFP SCIENCES in French 21 Jan 82 pp 22-23

[Text] Paris. Development of space launch equipment in Europe. For 3 days, from 19 to 21 January, some 200 European space specialists, manufacturers, and program managers from 11 member countries of the European Space Agency held a conference in Paris to discuss launchers and space missions for Europe during the next decade.

Should Europe go into the construction of launchers capable of orbiting real space vehicles? What compromise should be worked out between robots and the presence of man in space? What means would be necessary? How should one best use the gains and results obtained?

These questions create difficult choices.

The concluding roundtable session was held in the evening of 21 January, after AFP-SCIENCES had gone to print; this is why the official aspects of the conclusions arrived at by the conference which had been organized by the CNES [National Center for Space Studies] will be presented in the next issue.

CNES Director-General Yves Sillard, who opened the conference, expressed the opinion that "following the current Ariane Program and the Spacelab Program, Europe now has a very broad range of competence available. The important thing now is to combine energies and channel them toward a common objective of autonomy and competitiveness regarding all current and future applications."

Reviewing CNES thinking on future systems, Mr Sillard said:

(1) That they should, it seems, be grouped around a high-powered service module, capable of carrying payloads, automatic equipment, ground observation radars or automatic manufacturing plants in space or these same modules should be habitable;

(2) That on the other hand they include action vehicles intended to move one satellite toward another or to bring in materials to be manufactured in space. Should these vehicles be of a ballistic nature or should they be of the glider type?

It is necessary to continue to think about projects of the "Hermes" type.

Here is another subject of reflection: will these vehicles be purely automatic or will they be intended to carry astronauts?

Concerning the launcher as such, the so-called "future launcher," it should have at least three characteristics according to Mr Sillard:

The same capacity as the space vehicle in a geostationary orbit, but less expensive than the space vehicle. "In Ariane-4 we are dealing with the same price tag. With the next generation, we can entertain the ambition of being less expensive."

It must be capable of carrying "suitable weights" into a low orbit, in other words, about 15 tons. And--as a new objective--it must be "relatively competitive" as compared to orbits using the space vehicle.

It must be reliable and it must have a capability for carrying manned vehicles since its "lifetime" would attain and exceed even the year 2000.

What about the timetable for putting up such a launcher.

1982-1983: planning;

1984: proposals to governments;

1985: decision to go ahead;

Around 1993-1995: launcher operational.

At the beginning of his remarks, Mr Sillard sounded a warning to program managers and manufacturers in the European space industry. "We must not rest on the laurels we achieved through our success with Ariane. The margin between success and enthusiasm, on one hand, and disaster, on the other hand, can be very slim. We must launch a gigantic drive for quality."

5058
CSO: 5500/2112

NEW TECHNICAL DEVELOPMENTS IN TELEPHONE SYSTEM

Vienna DIE PRESSE in German 15 Jan 82 p 3

[Cristoph Ronge talks with Postmaster General Heinrich Uebleis: "No Wires in the Shining Future"]

[Text] Vienna--Last summer the telephone celebrated its 100th anniversary in Austria. In observance of this jubilee, the Postal Department offered two period (nostalgia) telephone sets. But in the 101st year, modern communication technology rules again. At midweek an order for the first 1000 production units of a home installation with 5 output jacks was placed with Schrack Electronics. In the fall, the Postal Department will start offering interfacing equipment. A request for proposals for the cordless telephone was also made recently; it too is expected to be on the market at midyear.

In the fall another epoch will end as the comfort telephone displaces the first generation of push-button equipment, announced Postmaster General Heinrich Uebleis in a discussion with the PRESSE. At year's end, almost 80,000 of the old push-button units had been sold at a price of 2,000 schillings each. Since the push-button keyboard is standardized and therefore interchangeable, it can also be used with new-technology equipment. The roles it will then play range from ten-digit memories to preprogramable children's calls: "Just lift the receiver and be immediately connected with mama."

A fundamental innovation which Uebleis is involved with: The three new systems will, in contrast to the old push-button equipment, no longer be sold but leased. "By this we save investment interest. Leasing is beneficial to the Postal Department since it has a neutral impact on our budget," offered Uebleis as the reasoning behind this step.

And what does this mean for the customer? "We will make no profit, just cover costs." The monthly bill for the home installation, including a telephone, will be 130 schillings. For each additional key unit--one jack can serve as a door opener and/or answering unit--the postal chief estimates 39 schillings per month; for dia' units, 23 schillings. Basic for the home installation--as it relates to an Austrian development primarily intended for single-family dwellings and small offices--is a "complete" hook-up.

With the request for proposals for level C, the auto telephone is entering its final expansion phase. Because of enormously high costs--the price for the end unit is 80,000 to 100,000 schillings--the most mobile of all telephones is still barely

making a go ot it. In Austria there are only 1,080 units. Uebleis' expressed goal is thus to push the cost under 50,000 schillings through expanding the number of units in operation.

Also public telephone booths will be further modernized. By summer--the start of the tourist season--500 new discount-card units will be installed primarily in foreign-tourist areas since the phone card--90 schillings for a 100 schilling call--has proved to be a winner. Additional passive booths in which one can receive a call after making a "signal call" and booths designed for wheel-chair occupants are on this year's program.

Vienna will apparently be the first area in which a waiting list for new telephone installations will be a thing of the past. At year's end there was in the Austrian capital a backlog of only 9713 installation orders, and these are being filled at the rate of 5,000 per month. Nationally, 200,656 installations were made last year with 132,000 of these being new. The waiting list on 1 January was 124,488 compared to 147,487 a year before.

There are presently 2.322 million telephones in Austria, or 31 per 100 people, compared to 80 per 100 people in the United States. Thus, the people's appetite for telephone is not satisfied by a long shot. Experts are thinking in terms of near saturation at 4 million sets around the turn of the century.

But that is along way off, and compared to today, the telephone may have changed completely by then. Consider a look into the future. In the FRG the Postal Department will soon launch a large-scale test worth a billion schillings which, according to Uebleis, "will be tracked with the greatest interest," by the small Austrian sister department. The magic word is BIGFON (Broadband Integrated Glass-Filament Telecommunications Network).

Concealed behind this term is a countless number of possibilities, for example, the picture telephone or stereo reception as well as standard telephone, telex and data-transmission traffic. In about a year, the prototype BIGFON system will begin test operations in Berlin, Munich, Hamburg, Stuttgart, Nuernberg, Duesseldorf and Hanover.

The German Postal Department's argument for the picture telephone hinges on the following: 80 to 90 percent of human comprehension capability rests on visually acquired information. Of course, most households already have telephones and TV sets, but what is still lacking for the picture telephone is the appropriate camera--only video fans have these now.

The Austrian Postal Department is also experimenting with light-conducting glass filaments to which, in the opinion of experts, belongs the future of communication transmission. For just under 3 months, actual subscribers have been telephoning with light between Hietzing and Meidling over a 7-km experimental circuit without noticing the difference. Light flashes replace electrical oscillations and the result is higher capacity, lower susceptibility to interference and lower material costs. The glass filament cable is cheaper than the copper cable: One kilometer of cable requires 30 gm of glass in contrast to 130 kg of metal.

No longer a utopian dream is the access by households to data banks. Uebleis will shortly issue a request for proposals for a public CRT service which will start operations in mid 1983. "And everybody will be able to use it for a very modest fee,"

as the Postmaster General conceives it. A practical example for the application potential: Uebleis reports the gigantic success of a German bank whose customers cannot just read but also execute banking transactions via CRT : home.

The post office is also playing guinea pig in a completely different area: In the near future, a biofuel test will be kicked-off in collaboration with the Austrian Automobile Club. Four hundred and fifty postal vehicles will run for a year on gasohol containing 10 percent ethanol. The test coincides with the 75th anniversary of the motorized mail service.

The post office is not isolated from current political problems which beset other industries. In view of the critical situation in the construction industry, numerous high-rise projects will be favored. The budget provides 1.62 billion schillings for new construction; however, according to Uebleis, the volume of telecommunications construction may be substantially increased by the assumption of other outside funds. Thus, by mid year construction will start on the telephone installation school and the post office management center in Vienna-Floridsdorf.

In total, the post office will invest 8.8 billion schillings this year, generating domestic orders amounting to 12 billion schillings. Uebleis figures that his department will generate a surplus again this year, "which will not be less than in 1981, or more than a billion schillings." Thus, not a bad prognosis for the government operation.

9160
CSO: 3500/2089

HELSINKI'S FIRST DIGITAL EXCHANGE BEGINS OPERATING

Helsinki HELSINGIN SANOMAT in Finnish 28 Jan 82 p 8

[Article: "Digital Exchange Put Into Operation in Helsinki"]

[Text] The first digital telephone exchange was officially put into operation in Helsinki on Wednesday. The new exchange, which is located in the Helsinki Telephone Association's building on Korkeavuori Street, will handle the traffic of telephone numbers beginning with the number 8. The telephone association, which is celebrating its 100th anniversary, also put another high-technology innovation into operation. The 8-kilometer long light cable between the Helsinki center and Huopalahti will transmit telephone calls along glass fibers.

The digital exchange is considerably cheaper than the traditional telephone exchange. Construction costs will decrease by approximately half. The digital exchange will need only a little less than one-fifth of the space required by a traditional exchange.

"Speech will travel through the digital exchange as a flow of computerized and consecutive numerical values. Samples of speech are taken 8,000 times per second. The numerical values to be transmitted are created on the basis of these samples," states Technical Director Kurt Nordman of the Helsinki Telephone Association.

According to Nordman what is new is that the flows of digital data can now be transmitted through the exchange without changing the speech back into its original form. Until now flows of digital data could only be transmitted between exchanges.

"As a result of this new exchange electronics and computerized control will come into their own. The situation is reminiscent of the breakthrough made by pocket calculators a few years ago," states Nordman.

Meilahti and Toolo Are Next

Initially 1,700 cables were connected to the center. Next year it will be expanded to include 7,000 cables. The same type of digital exchange will be installed in Meilahti in 1983 and a year later in Toolo. The exchanges were ordered from the Siemens Corporation.

Finnish Telenokia will deliver five new exchanges to Espoo, which will be put into operation in a couple years.

A Light Cable to Haaga

The light cable installed between Helsinki and Haaga is another achievement of the telephone association. This pencil-width cable is capable of transmitting 6,000 calls simultaneously. The cable is comprised of six hollow glass fibers. Only a small portion of it will be used initially.

In order to match the capacity of this light cable with traditional methods, 11 thick cables would be needed.

The Helsinki Telephone Association intends to gradually install additional light cables. Experiments on light cables were begun in the Hameenkyla area of Vantaa in 1979. The 8-kilometer long light cable between the central exchange and Haaga is the final version developed from this.

In honor of the dedication ceremonies Managing Director Martti Harva of the Helsinki Telephone Association made a telephone call to Mayor Raimo Ilaskivi. The call was transmitted through the digital exchange and along a light cable from Korkeavuori Street to city hall. The cable also transmitted a digital picture of the mayor to tv-monitors as proof of the capabilities of this new equipment.

10576
CSO: 5500/2094

BRIEFS

LOANS FOR ARIANE LAUNCHES--Paris. French loans for three American users of Ariane. Credit Lyonnais and the National Bank of Paris have just granted three American companies almost Fr500 million in loans for five satellite launches for the European "Ariane" rocket according to an announcement released by Credit Lyonnais on 19 January. Credit Lyonnais, the leader in this operation, did not disclose the amount of each of these loans which are to run 5 years. Two of them involve the "Southern Pacific Satellite Company," an affiliate of the "Southern Pacific Transportation Company for two launches scheduled in February and August 1984. A loan was also given to "Western Union Telegraph Company," of the "Western Union" telecommunications group, for a launch in December 1983. Finally, the affiliate of the General Telephone and Electronics Group "GTE Satellite Corporation" will get two loans for two launches scheduled for May and August 1984. [Text] [Paris AFP SCIENCES in French 21 Jan 82 p 25] 5058

CSO: 5500/2112

BRIEFS

INMARSAT SYSTEM OPERATIONAL--The INMARSAT satellite communications system will operate in Greece, alongside the conventional communication means, as of February 1, to serve the Greek merchant marine's, as well as the Greek Telecommunications' (OTE) broader economic aims. Greece is one of the founders of the INMARSAT system and participates with 3 per cent in INMARSAT's share capital. OTE has been taking part in all preparations to set up the necessary ground stations in Greece. OTE's share in the project is estimated at 600-700 millions drs. [Athens ATHENS NEWS in English 31 Jan 82 p 9]

CSO: 5500/5326

PRESENT STATE, FUTURE DEVELOPMENT OF TELEMATICS

Rome POSTE E TELECOMUNICAZIONI in Italian Sep-Oct 81 pp 15-21

[Speech by Dr Ugo Monaco, general manager of PT (Post and Telecommunications), to the X Committee of the Chamber of Deputies within the framework of the inquiry into telematics; date not given]

[Text] Present State and Future Development of the Service-Experimentation Plans

Before going into the merits of the arguments that form the subject of the problem area on which I have been asked to report, I consider it advisable to state that I promise again to present a series of considerations on the aspects relating to the most general acceptation of the term "telematics," understood as the possibilities offered by the fusion of telecommunications and data-processing.

That is, I will not limit myself to considering only those services based on data-processing and telecommunications, such as remote processing of data or remote interrogation of data banks, but also those systems which, using telecommunications, make it possible to "transport" information, in a broad sense, to a distance--systems such as Electronic Mail can be.

With this understood, I would like to make it clear, as a preliminary remark, that contrary to what is often asserted, our country is not in a backward position vis-a-vis other countries. The fact is that experimentation with new services is being conducted with caution everywhere, both because it is necessary to spread out over a period of time the considerable investments necessary, because it often appears more advisable to improve the quality of the existing services, and finally, because of the implications of a social and economic nature that the new services have on the evolution of society.

As regards the first point, I can say that the PT Administration has provided for experimentation with new telematics services on the basis of the information furnished it by the studies conducted by two committees specially set up for examination of the problems posed by, respectively, "Electronic Mail" and the "New Services (Videotext and Teletext)."

The work of the two committees has led to the formulation of a proposal for experimentation in two distinct fields of application of telematics--communication of texts, and data-searching--for the purpose of verifying the interest in the use of such services and planning the introduction of them.

The experiment on communication of texts will be carried out by means of facsimile terminals and coded-character terminals.

The experiment relative to facsimile service, which will last 1 year and should begin in the coming days, will be conducted with terminals available on the market and placed in 10 different PT centers throughout the national territory.

The messages handled within the framework of this facsimile service (Bureaufax) will be accepted at the PT offices, transmitted and delivered to the addressee with the greatest speed. The transceivers used will be terminals of ICCTT [International Consultative Committee on Telephony and Telegraphy] Group 2 using ISO [International Standardization Organization] A4 standardized sheets, transmitted in about 3 minutes.

Only in the Rome, Milan, Turin and Palermo centers, where higher traffic is expected, will ICCTT Group 3 facsimile terminals be used also, with which it will be possible to transmit the aforesaid standardized sheets in 1 minute.

The Group 2 sets will be interconnected through the switched telephone system with the use of special line-terminal units, and the Group 3 terminals will be connected with specialized point-to-point direct lines.

In parallel with the facsimile experiment described above, the concessionaire company SIP [Italian Telephone Company] is developing the Telefax service (facsimile transmission between private parties on switched telephone system), the regulations for which have been discussed and approved.

The part of the text-communication experiment involving the use of coded-character terminals will take place in three distinct phases, depending on the availability of the terminals and the development of special software applied to the existing system organs.

The first phase, which will begin within the year, is characterized by the use of EDS [Electronic Disk Store] telegraph exchanges and 300-baud terminals with possibility of interconnection with the 50-baud telex service through the Milan message-switching center, in which special software developed for the purpose will be used.

The terminals used will be more sophisticated devices than the normal teleprinters, and in addition to the sending of normal typewritten letters, will be suitable for office-automation purposes.

These terminals will be installed in the 10 principal telegraph offices that are the centers for the facsimile experiment, limited to the receiving part only, in several central and divisional departments of the PT Administration, in with special users such as, for example, the concessionaire companies. Thus, in 10 PT offices it will be possible to receive, in addition to the correspondence transmitted by facsimile from other PT centers, also the correspondence transmitted by coded characters, coming either from the PT central and divisional departments or from the abovementioned selected users admitted to the service experiment.

By means of the software used in the Milan message-switching center, the communication system will be capable of offering special services such as multiple addressing, retrieval of texts previously stored in memory, and restoral of initial conditions when any eventual breakdown has ended.

In parallel, it is planned to test the hooking-up, to the EDS exchanges, of 2,400-bit/sec terminals with 300-baud selection that apply conversation procedures very similar to the ICCTT standardized Teletex procedures and presently used in the terminals employed in an analogous experiment being conducted by the PT administration of the FRG.

The second phase of the experiment, planned for the first half of 1982, will consist in gradual replacement of the terminals used in the first phase with those that correspond entirely to the ICCTT norms relative to Teletex service and appropriate adaptation of the software in the message-switching center in order to achieve integration of Teletex with telex service. Finally, the third and last phase of the experiment, development of which is also planned for 1982, is characterized by extension of the second phase.

From the above it can be asserted that Telefax, Bureaufax and Teletex service could be furnished to users at the beginning of 1983.

As regards the Videotel experimentation, considering the fact that at present the service can be conducted exclusively by use of the telephone system, the concessionnaire SIP has been given responsibility for starting up the experimental phase; it will use the technology of the English Prestel system, and for that purpose has already provided for purchase and installation of a first Videotel center in Milan.

That center will have available about 50,000 "pages," with which it is intended to cover, in an initial phase, a broad field of information, albeit with a reduced number of pages for each sector.

In a second phase, the possibility of connecting external data banks is foreseen also.

For the experimentation, subscribers located in specific parts of the national territory will be able to have access to Videotel, both by means of special numbers and through TDM [expansion unknown] sets.

As regards the terminals to be used during the experimentation, the technical specifications relative to them are being defined so as to furnish the essential elements to the industry, giving it the task of defining the level of integration of the various functional units constituting the terminal itself.

In addition to testing the user response to the new service, the present experimentation is to make it possible to obtain the elements considered indispensable for defining the most suitable system to be adopted in the commercial phase of the service proper.

Finally, regarding the Televideo-service experimentation, it has been assigned to RAI [Italian Radio Broadcasting and Television Company], since, as is known, that service (internationally designated as "TELETXT"), uses the existing television networks, being capable of transmission simultaneously with a TV program without disturbing it or being disturbed by it.

To describe it briefly, it is a kind of newspaper whose pages, of which there can be several hundred and which can be updated rather rapidly, are legible on the television screen at any time, at the user's choice.

The written texts can be received as an alternative to the television program or even superimposed over it, thus making it possible, for example, to transmit captions for the hard-of-hearing or in various languages.

At present, experiments are being conducted by RAI in Piemonte and Valle d'Aosta to enable the working group set up for the purpose in the PT Ministry to obtain technical information for choosing the technical transmission norms.

As regards the outlooks, it can be predicted that within the next 10 years, if the price difference between normal television sets and those equipped with a televideo decoder is not great, more than 50 percent of television sets will be equipped with the appropriate adapter for using the new service.

As regards fee policy (that is, a possible hike in the TV fee), it will be established after the conclusion of the experimentation in progress.

2. Adherence to the Programs Planned, Present State and Short-Term and Medium-Term Forecast of Adaptation of the System to the New Requirements of Telematics

The principal infrastructure capable of exploiting the characteristics and services offered by the present telephone system, for the purposes of conducting the telematics services, is without doubt, in the short and medium term, a specialized network for data-communication implemented in accordance with the most recent orientations that have emerged in the international framework.

In Italy, a plan for development of a data service of advanced type, both for circuit switching and for packet switching and coherent with the introduction of digital techniques into the TLC [expansion unknown] network and with gradual activation of the integrated network in the services, was defined by the PT administrators in 1979. From the first phases of construction, the organization of the network and the fundamental technical choices will be in harmony with these principles. The abovementioned development plan actually provides for two network levels:

(a) the upper level (primary network), articulated with specialized exchanges designed to carry out the functions of international and national data transit and the handling of the terminal traffic of the users hooked up directly to them;

(b) the lower level (secondary network), articulated with data-phone exchanges and installations, designed to carry out the functions of collecting the user traffic and concentrating it, general handling of the traffic within the area in question, and routing of transit traffic.

In accordance with this network organization and in function of the anticipated development of data usage in the period 1981-1990, the construction work described below is planned.

Upper Level

Three packet-switching nodes (Milan, Rome and Naples) are planned for in the first phase of construction of the network (corresponding to total data usage of 20,000 terminal installations), and subsequently, possibly, five circuit-switching exchanges. In a following phase (1990), exchanges for circuit-switching data are planned in the Telegraphy Division centers, and a number of packet-switching nodes adequate for the traffic and for development of use.

The connecting of these exchanges with one another (complete linkage) and with the installations and exchanges of the lower level will be based on the use of digital techniques.

Lower Level

The lower network will be composed of digital groups stages for data-phone use, packet adapters-concentrators (ACP) and decentralized line stages for collection and concentration of user traffic.

In the first phase, the group stages will be installed in 12 centers, while there may be a larger number of packet adapters-concentrators, and they will be installed in localities depending on the distribution of the user traffic to be served.

Subsequently, in line with the gradual evolution of the telephone system from analog to digital technique and the increase in the volume of user traffic served, the number of group stages and packet adapters-concentrators will increase and areas on the provincial level will be served.

In the first phase, the line stages are planned for the provincial-capital level.

As of the present, the equipment for the first three packet-switching noed (Rome, Milan and Naples) and several dozen ACP's has already been allocated.

3. Outlooks for Development, within the Decade, of New Services in Terms of New User Traffic

The outlooks for development of new telematics services can for the most part be derived from the most recent data-transmission market study carried out with the 1979 "Eurodata Study."

This study is the result of market research conducted at the European level by a consortium of 14 international consultants, under the guidance of the English company Logica, on behalf of the Eurodata Foundation, representing the PT administrations of 17 countries of West Europe, including Italy.

The market study gives both the number of data-transmission terminals that will constitute the total quantity of user sets in the years from 1980 to 1987 in each of the 17 European countries and the number of terminal installations (IT) or points of access to the telecommunications network. It also provides detailed forecasts of the different types of terminals (classified by speed and by field of application) and on the type of telecommunication network used.

The results of the study indicate that at the beginning of 1979 there were about 625,000 data terminals connected by telecommunication line in West Europe, while at the beginning of 1987, there should be 3.96 million terminals for the various types of remote-data-processing applications.

Such a rate of growth in the number of terminals will obviously be accompanied by an analogous increase in the points of aceess to the telecommunications network--this last term comprising both the public switched telephone system, the direct circuits, and the public networks specialized for packet-switching and circuit-

switching data. These points of access (also called terminal installations) should go from 393,000 in 1979 (still speaking of the Eurodata countries) to 1.6 million in 1987, therefore requiring a big investment and development effort on the part of the administrators.

Simultaneously, data traffic will increase both within the individual countries and internationally, raising the mean estimate of the number of transactions transmitted in West Europe in a year from the 136 million of 1979 to 753 million in 1987--a 5.5 factor of increase.

A really significant part of this traffic is the international traffic, which in 1987 will represent about 30 percent of the total data traffic.

As regards Italy, the present 75,000 terminal installations (at end of 1980) should increase to 108,000 at the end of 1982 and 196,000 at the end of 1986, thus representing a little more than 12 percent of the grand total for the Eurodata countries. In parallel, the number of data terminals connected through telecommunications facilities is expected to reach 183,000 units at the end of 1982 and about 440,000 by the end of 1986.

Along with this increase there will be a qualitative change, represented on the one hand by a stronger trend toward use of high mean transmission speeds, and on the other, by a more marked orientation toward the use of alphanumeric video terminals and terminals for text communication and facsimile, in place of the teletypewriter and batch types.

This orientation toward greater use of video and text-communication terminals is connected, on the one hand, with the decrease in the cost of the components (for example, high usage of simple video terminals with protocols of the teletype type is expected), and on the other hand, with applications such as information retrieval and communications of texts ("person-to-person communication").

Along with the increase in the number of terminals and of the traffic relative to such applications, apart from the traffic relative to applications of other type, such as computation or software development, there should be a countervailing stability of applications such as general administration and a decrease (in percentage terms, and not in absolute figures) in banking-type applications, due to the "maturity" or saturation of the sector, which was the first one to go into remote data-processing massively and extensively.

As a result of such developments (applicational, technological and social), the need will arise for the users to have available to them a wider variety of telecommunications infrastructures and spcialized structures for data communication.

It should be emphasized especially, as regards the applicational aspect more particularly, that the emergence and development of applications of the information-retrieval or person-to-person-communication type (telematics services) and a general trend toward a wider distribution of processing capacity and of files represent a considerable impulse toward the establishment of system architectures involving systems that are no longer monocentric (that is, based on a single processing center) but rather articulated with several centers, or even with several systems, scattered over the national territory.

In addition to this there is the trend--already under way for several years and confirmed by the 1979 Eurodata study--toward decentralization of remote data-processing, in the direction of a higher rate of increase in the number of terminal installations for data transmission in the minor areas and the starting-up of terminal installations in peripheral localities not previously affected by this phenomenon, because, among other things, of the setting-up of territorial, vital-statistics and health files or data banks at regional and communal levels.

In this context, the role that will have to be played in the coming years by the services offered on the public circuit-switching and packet-switching network therefore appears increasingly important; such services do indeed represent the appropriate response to the requirements of interconnection (between units wherever they are located), availability (on the basis of the applicational necessities) and reliability that are arising more and more all the time within not only the Italian but also the international framework.

The testing and startup of new text-communication services (public facsimile and telex and information retrieval [videotel]) may induce a strong incentive for the terminal market in Italy, to an extent that cannot be accurately estimated at present.

As regards videotel service, the Eurodata study gives for Italy a forecast of about 350,000 terminals in 1987, relative to "domestic" usage (by domestic usage is meant the potential usage of videotel service using an appropriately adapted television set as the receiving terminal), on the hypothesis that initial experimentation with that service will have been started in 1983.

As for facsimile service, for which about 5,000 terminals are presently installed in Italy, it is forecast that the figure may reach about 20,000 in 1986.

Finally, as regards televideo service, it may be expected that within the next 10 years, if the price difference between normal television sets and sets equipped with a televideo decoder is not great, more than 50 percent of television sets will be equipped with the adapter required for using the new service.

4. Rate Policy and Concessionary Activity Forecast

As regards the rate policy that will have to be followed, it is clear that since the new telematics services use and will use the same infrastructures as the traditional telecommunications services, a balanced distribution of the total costs among the various services has to be achieved, and it is therefore necessary to effect, in the first place, a rebalancing of the competencies among the various managing entitites. In other words, for determination of the rates for the new services, the same problems arise as for adjustments of telephone rates--in particular, the necessity of achieving a more rational distribution of the costs connected with production of the services. Rate policy is therefore partly connected with "concessionary" policy.

Regarding this last-mentioned aspect, the necessity of concentrating relations with the users in a single manageing administration appears increasingly evident. The rapid technological evolution, the inherent technical characteristics of the new services, the increasingly indistinct demarcations between telephonic and nontele-

phonic services, the now irreversible trend toward integration--these are all elements that make it necessary to prepare immediately for a different configuration of the administrative competencies, a configuration that will provide for a single interface with the users.

5. The Commercial and Aid Structure and the Promotional Activity Planned for the New Usages within the Decade; the Question of Possible Problems of Competition with the Data-Processing Firms

A commercial and aid structure has not yet been defined, nor has promotional activity been outlined. This is the case because, among other things, of what I mentioned in the preceding section about the present "promiscuity" of administrators having relations with the users.

But it should be added that independently of this problem, we are still in an experimental phase, and it is the experimentation itself that will furnish indications about what it will be necessary to have in order to prepare better for the usage requirements.

As regards the problem of competition with the data-processing firms, it certainly does exist today, and not only in Italy: the colossuses of data-processing are tending to absorb the telecommunications firms, inasmuch as they consider the transmission medium an entirely subsidiary instrument for conversationbetween intelligent machines, and vice-versa, the telecommunications officials are more and more building up their own structures, in the direction of taking an interest in the problems of data-processing also.

A complete integration of the techniques and a balanced joint participation in development of the future telematics sector is to be considered possible on condition that the state guides and programs the entire sector.

6. Economic-Financial and Normative Requirements for Acceleration of Development of the Telematics Sector in Italy

The economic-financial requirements for development of telematics are relative to two different sectors: that of the network infrastructures, responsibility for which lies directly with the managers of telecommunications, and that of the user terminals--a sector which, like what is already the situation as regards television sets, involves private-party consumption.

The financial means needed for development of the telecommunications networks--both the traditional telephone system and the specialized system for data-transmission--must be estimated within the framework of examination of the various development plans of the entities in the sector, and in any case, it must be considered that as regards the data-transmission network--which, as already stated, should be considered the fundamental support in the short and medium terms--investments beyond those that are programmed and partly committed for are not necessary. The network has in fact been programmed with the possibility of its carrying all the new telematics services taken duly into account.

Regarding the terminals sector, it is obvious that acceleration in development of the services will depend essentially on the economy of the terminals themselves in

relation to a high quality. This is possible only by developing the production of electronic components to a high degree of integration and providing for suitable normalization and standardization in order to achieve economies of scale.

The state can therefore take action with adequate support for research in the microelectronics sector, which on several occasions, and recently too, has been pressed for a revival of national production of high technological content.

The problems of the norms that must govern all the technical, organizational and administrative aspects and provide for possible implications of a socioeconomic order are already under study in the PT Ministry.

The technical norms in particular, which have a direct effect on timely industrial production, have already been defined for the experimental phase, and the results of the experimentation are awaited for preparation of the definitive norms.

Nevertheless, the difficulties that the PT Administration experiences because of its own present organization in the carrying-out of such exacting tasks should not be overlooked. In order for it to be able to perform the essential functions of programming and oversight of telecommunications, there is an obvious need to set up an appropriate organ within the framework of structural reform of the PT Ministry, in the vaster process of reorganization of national telecommunications.

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BRIEFS

NETHERLANDS TO JOIN L-SAT--The Hague. Dutch participation in L-SAT Project. The Dutch government will participate with 135 million florins (about Fr310 million) until 1986 in the development of the communications satellite, the L-SAT, a project of ESA (the European Space Research Agency), the Dutch cabinet decided on 18 December. A government announcement notes that the Dutch contribution will constitute 12 percent of the costs for developing this satellite which to a great extent will be financed by Great Britain, Italy, and Canada. The L-SAT should be launched in 1986 with the help of the European "Ariane" rocket. Dutch participation signifies the creation of 600 jobs in the Netherlands in 1982-1986, according to the announcement. On the other hand, the Netherlands will contribute 6 million florins to microgravitation research being conducted by ESA. [Text] [Paris AFP SCIENCES in French 24 Dec 81 p 24] 5058

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